

Aviation News

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JANUARY 31, 1944



Directs Navy's Global Airline: Capt. D. F. Smith, USN, director of Naval Air Transport Service, which carries on scheduled military transport services over a world-wide transoceanic and overland network of more than 65,000 miles in addition to special and emergency missions which clock more tens of thousands of miles monthly.

★ U. S. Mum on Reconversion Chief

Nelson-Baruch deadlock continues with no indication of imminent break; test-tube plan studied by manufacturersPage 10

★ OWI Reveals Colossal Job of NATS

Service carries 8,300,000 lbs. of cargo and mail and 22,500 priority passengers monthly, according to U. S. agency surveyPage 7

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★ Preferreds' Position in Aircraft

Senior issues hold leading place in number of companies; Convair's sinking fund provision to become operative soonPage 40

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Fighters all the way to target and back ease work of busy crews aboard bombers and eliminate part of costly toll of daylight raidsPage 22

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New propeller device is fully as effective as installations on wheels, declares Army Air Forces materiel chiefPage 11



...in Electronic Control Systems for Bombers

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AERONAUTICAL
INSTRUMENTS

THE AVIATION NEWS

Washington Observer

MYSTERY OF THE "MIDNIGHT HAWK"—It was puzzling to most aviation people when Wright Field announced the conversion of the Douglas A-28 bomber, a versatile craft, into a night fighter, armed with four 20 mm. cannons and designated officially as the P-70, and unofficially as the "Midnight Hawk." This craft has not been in production for more than a year, and not more than 100 or so ever were built. Why it was decided to release a story on them is something of a mystery and some of the people involved confess privately that they don't know the answer either. Wright Field officials gave no details of the modification except to say that the plane is fitted with night intercepting equipment and other installations to facilitate night fighting.

DR? IS THE ORIGIN—The Midnight Hawk goes back to the old DR? which Douglas was making for the French. A later model, the DETA, also went to the French in some numbers and the company was on the DR1B when France collapsed and subsequently the British took over the rest of the order. Later the British reworked these jobs into a night fighter with good results in the early days of the Battle of Britain. Later on, in this country, the A-28 was converted into the P-70 which was a secret to go into. AAF review even passed a story on it several months ago. Pictures were printed last fall. It was somewhat similar to the British version, which was called the Hawk. The P-70 is not to be confused with the latest model A-28 bomber by Douglas, which is so heavily armed with cannons that it has moved into the fighter-bomber class.

CARGO AIRSHIPS—Some interesting studies have been made of cooperative work on air cargo utilizing rigid airships and there is said to be some capital stirring with the idea of cargo transportation by airships in the post-war period. There apparently is no likelihood of blimps being used for cargo, since the expense of ground handling is virtually the same as for the bigger rigid ships, with economy of operation favoring the rigids.

POST-WAR MARKETS—Aviation shortages in firms hesitate to step in aviation after the war point to the ready-made market that will exist for such consumer goods as refrigerators, electrical appliances of all kinds and other items of standard household equipment which have virtually disappeared from dealers' shelves. The

WPB has made it clear there can be no substantial conversion to peacetime economy until the war is definitely won.

PILOT ADMINISTRATORS—The war is breeding a new, potential type of aviation administrative official which may offset the entire executive lineup of our airlines after the war. Experienced, capable pilots who, before going into the Army, shuffled airframes between New



Super-truck exits off Willow Run Laboratory

York and Chicago or Chicago and the West went into the Army expecting to find little contact except for their uniforms and the camouflage paint on their Army transports. Instead, the Air Transport Command began placing them in key administrative jobs at a desk, running the show. They seem to like it. Some don't care if they never return to routine flying. The airlines probably won't be able to absorb all of these administrators, but they will take back the best of them. This is another indication that many of the men who will operate our post-war airlines may be of a new generation.

ATC'S FUTURE—Barnes are rampant that the Air Transport Command is cooking in eye to the days of peace. Pilot and courier-plans among ATC personnel are described by those accordingly "in the know." There are stories that some routes which would be commercially unprofitable after the Armistice will be maintained by the ATC as defense arteries. There are other stories that officers are getting themselves well entrenched to operate globe-girdling



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Administrative Tools

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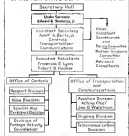
routes in three years. Only authoritative reply that responsible airline officials make to such group is this: "Gen Arnold has made clear to us that the ATC will be disbanded after the war." They would not be surprised to see a group of influential officers now at the head of ATC jump into the air transport business together, however.

CAB's PRESTIGE—Industry confidence in the Civil Aeronautics Board appears to have plummeted in the past two weeks. Blamification has broken out like a rash. Pen-air-ops flaps are being expressed throughout the air-transport industry. The Board's past decisions and actions show no pattern, few similarities, a lack of comprehensiveness of voices, airline executives are saying. The same men protest that the Board is weak. They set no immediate hope for strength. Meanwhile, they see the pressure on the Board for action rising by the week. What will happen next? None will forecast. Even so, the Board's reputation for impartiality, that has kept many agencies from dragging CAB decision through the courts, is doubtful if CAB could survive on a test.

STATE DEPARTMENT SPECULATION—

Air transport industry speculation is at a new high on who will emerge as the State Department's chief aviation figure. A few questions:

HOW AVALIATION APPEARS IN THE NEW STATE DEPT. ORGANIZATION



being asked are these: Will Adolf Merle, Jr.—now in charge of aviation—remain as one of the four constant secretaries of State? Who will be

Washington Observer

turned director of the new Office of Transportation and Communications under Berle.⁸ Who will be selected chief of the Aviation Division, which is one of the three units in the new Office? The other two divisions are for Shipping and Telecommunications.

APPLICATIONS BASED ON STATISTICS—

As forward-looking airlines drive deeper into cost-reduction studies, they reach surprising conclusions, which upset popular notions about small American cities and their potential airside economic benefits. The airlines' studies show that "oblivious" points for new routes frequently are eclipsed by others in the same state or area, though these names are seldom heard about throughout the rest of the country. The answer is that the character of a city's business and trade is an important factor in the airlines' calculations. The cities are not necessarily the good airline destinations. Old-fashioned civic spirit, however it waxes, is another factor. Some cities have never had it, probably never will. While the loads of applications dumped on CAB for new airline positions have frequently been indiscriminate, more enlightened airlines have trained their eyes on cities before announcing new routes.

HIGHWAYS WITHOUT AIRPORTS—The

President's super-highway system caused flight strips and airports. This aroused surprise in Washington aviation circles. Congressmen for years have been passing bills for super-projects in the hopper and inevitably an elaborate set of airports was called for at important highway junctions, and scores of flight strips elsewhere. The National Inter-regional Highway Committee which prepared the report first met about two years ago with the Commissioner of Public Roads as chairman, and Richard Tugwell, the late Ex-Gov. Governor of Georgia, a representative of the "Automotive Safety Foundation," and two other state officials as members. Public Roads Administration's flight strip officials were never consulted.

OPTIMISTIC ABSOLUTISM—“Blue” Amulet's no.

senial opinion and willingness to be quoted on a moment's notice regarding the significance of the latest news items may be doing a disservice to aviation. This opinion is finding more adherents in Washington. Although perhaps far from Washington's communications channels to the European front, and before adequate reports of enemy damage and our own losses can be available, the General is always willing to indicate continuing new progress. Publicly-minded officers fear that some day this eagerness will prove to the nation that the general's advance information was inadequate or even grossly in-

DON'T LOOK NOW—
BUT HERE COMES
444 LADIES STOCKINGS

YES Girl-Bombay Meri, that big silk-screen, has another knot as its Parachute nylon. Strong parachutes. Safe parachutes.

It is acetone—produced by Shell from a waste petroleum gas—which changes a cotton derivative, cellulose acetate, to a syrupy liquid, the "spinning solution." This is forced through holes of microscopic fineness. Presto! Silky fibres. These are twisted into thread. From then on, you can name what you want—from sheer, glamorous stockings to a parachute!

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First oil refinery to make Army-Navy "E" Shell's Woodbury Refinery.

**FINER FUELS
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OWI Report Reveals Colossal Job Done by Little-Publicized NATS

Service carries 8,300,000 pounds of cargo and mail and 22,500 priority passengers monthly, survey reveals

By SCOTT HERSHEY

Boarded five days after Pearl Harbor, the Naval Air Transport Service is doing preeminent around the world with small recognition and, in Navy tradition, asking none. NATS in its increasing traffic runs, carries approximately 3,000,000 pounds of cargo and mail and about 22,500 priority passengers a month.

NATS isn't stopping at every type of field from jungle whistle stops to metropolitan airfields, is now flying some 3,690,000 plane-miles each month and during the last half of 1943 increased operations by 70 percent over the first six months of the year. The Navy expects further increases in 1944 as more aircraft are assigned to the service, and as the Navy's needs spread further from the states.

"Max" Record Flight—The Naval Air Transport Service is a division of the office of the chief of Naval Operations. Capt. D. F. Smith is director.

An outstanding case in point of NATS operations is the Martin Mars flying boat which recently landed in Hawaii on her initial Pacific operation after establishing records on a non-stop flight to Natal, Brazil, and a more leisurely flight home.

Security prevents disclosure of the size of the NATS fleet, which the Navy says is composed of both seaplanes and landplanes in almost equal proportion. With large landplanes now flying overseas extensively, about two out of every three aircraft are in trans-oceanic service. The remainder are used within the United States, connecting naval bases with plants where supplies are manufactured.

OWI Report—These data are all from a report prepared by the Office of War Information which has had the complete cooperation of the Navy in gathering information, and

which assigned to the report an OWI expert on aviation.

In addition to former airline personnel now serving with the NATS, and it should not be overlooked that without the aid of the airlines the operations would have been impossible. Pan American Airways System and American Export Airlines, under contract to the Navy, conduct a number of NATS operations of the same type as those carried on by regular NATS units.

South America to Alaska—Pan American has NATS schedules in the Atlantic and Pacific and from the United States to Alaska and South America.

American Export's NATS contracts are for transport along Atlantic routes from this country to Africa and South America. Both airlines carry on their commercial international services in addition to but apart from, their Navy services. Main routes now flown by NATS according to the Navy and information furnished are indicated, as follows:

Three Days to Australia—The Pacific flying boat operation which ex-

tends from Alameda, Calif., to Pearl Harbor and southwest through the Pacific to Australia. The MATS today makes this trip in three days.

In the landplane operation to Alaska and the Aleutians, Douglas R4D and R4D transport (C-47) specially equipped for the Arctic (C-47) specially equipped and winterized, are flown by crews trained to cope with weather hazards of the area between the naval air stations of Seattle and Kodiak, and more advanced Aleutian bases.

Coast to Coast—Inland from the west coast, NATS landplane schedules are operated between naval air stations at Oakland, Alameda, San Diego, and Palmdale River, Md., and New York. At the latter two points, these schedules mesh with NATS operations from east coast naval stations. East coast landplane schedules extend from Newfoundland through Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Jacksonville, Pensacola and New Orleans to Corpus Christi. A summer MATS service goes to Greenland and Iceland.

East Coast Route—Another route from the east coast leads south from New York to naval establishments at Guantanamo, Cuba; San Juan, Puerto Rico; Arica, St. Louis, Trinidad, and along the east coast of South America to Natal and Rio de Janeiro, Brazil.

Also from New York, Patuxent River, and Miami, NATS flying boats are in scheduled service through

NATS Progress Report

The OWI report declares the Naval Air Transport Service:

1. Carries on scheduled transport service of more than 40,000 miles overseas and overland in addition to special and emergency missions;
2. Conducts the fleet a two-week maintenance and supply service that has been an important factor in our naval successes;
3. Has grown in 35 months from the operation of one flying boat to ten full transport squadrons, several ferry units, and large contract operations by Pan American Airways System and American Export Airlines;
4. Annually turns in hundreds of thousands of pounds of urgently needed war materials, such as soap, tentacles, and natural rubber;
5. Is rapidly expanding its operations to meet the Navy's requirements and relieving its training program—the latter partly through contract services of Pan American-Continental Airlines, American Airlines, Pan American, American Export, and United Air Lines;
6. Is developing new or improved air transport techniques, seen as valuable aids to commercial aviation after the war.

Miami, Great Barrona, Bahamas, Guantanamo, Cuba, Portland, Puerto Rico, San Juan, Puerto Rico.

► **Africa**—A newer route includes service from the United States to Africa, by way of South America and across the South Atlantic. The primary ferry route operated by the navy air ferry command wing of the NATS runs through Lynchburg, Nashville, Little Rock, El Paso and Texas.

The long-range mail routes are trunk lines, it should be noted, and from each extend many feeder lines, particularly in the Pacific and Caribbean.

► **Priority Passengers**—All NATS passengers, incidentally, are priority passengers, largely naval personnel. Most of them fly at least 1,200 miles per trip. Each ton of priority cargo averages about 1,200 miles per trip.

NATS transports return from overseas flights with cargoes of strategic material for American war industry, such as diamonds, mica, beryl ore, rubber, quartz crystals, platinum, uranium and black tea.

The Air Cargo Protection Section of WPA estimates that during 1949 such cargo moved 8 times faster and 36 times more safely than by surface carrier.



"SARATOGA" FLYERS' PARACHUTES INSPECTED:

Shroud lines stretch back to the parachute riggers in the left of this famous aircraft carrier. There should line, 27 of them attaching the canopy to the harness, are cords of 600 pounds tensile strength. Each shroud line passes over the top of the canopy through an intermetal seal to prevent tangling and to give strength to the entire chute.

► **Delivers 3,000 Phones a Month**—The Naval Air Ferry command is at present delivering some 3,000 planes a month to the Navy. There are three naval air ferry command squadrons based at New York, Columbus, Ohio, and San Francisco. One service squadron and several service units are stationed along the domestic ferry routes. The NAFC, under command of Capt. John W. King, USN, was commissioned Dec. 1, 1943, as a wing command of the NATS.

Originally the ferry groups were designed solely for delivery of new planes from contractors' plants to fleet pools on the East and West Coasts. So far, all deliveries have been within the continental United States, a significant endorsement, but as the war progresses and such large aircraft as the PB4Y and the B-34 are delivered in quantity, the Navy expects the ferry service to extend overseas.

► **New Techniques**—The Navy estimates that new techniques and improved methods of packing airborne cargo developed by the NATS are saving more than \$2,000,000 annually.

It is believed that the Navy's findings along these lines of packing airborne goods, which move perhaps

part of the way by surface carrier, will stand commercial operators in good stead in the increased volume of port flying that is sure to follow the war.

► **Types of Planes Used**—Currently, the NATS uses the following aircraft types: The R3D-1, R3D-1, and R3D-1, which are the Army's C-47 and C-53; the four-engine Consolidated Catalina PR4V-3R, converted for use as a transport; the four-engine Sikorsky HO4S, known in the Navy as the HO4S-1; the two-engine Martin PRM-3R, converted for transport use; the Boeing 314 Clipper, the Curtiss-Wright Commando, the great Martin Mars and several miscellaneous types acquired from the airlines. In addition, some Consolidated Liberators and the new stainless steel Bock transports, the R3-12S are soon to be acquired.

► **Converted Aircraft Used**—The majority of the aircraft available to the NATS are not the most efficient transport types," the Navy reported. "Conversion of combat patrol bombers, both landplanes and seaplanes, to transports has in general been a failure. The conversion of bombers, however, while production facilities of the country are quite properly devoted almost exclusively to manufacture of combat aircraft, the NATS will continue to carry loads in any equipment available."

Turning from actual air-carrier operations, it should not be overlooked that the NATS has an extensive technical training program, at which, for example, pilot training is but one phase. At the Naval Aeronautics School, Hollywood Beach, Fla., prospective NATS navigators are taught the principles of aerial navigation in classroom and in actual practice.

► **Flight School**—Flight engineers are instructed at the Naval Training School (Flight mechanics) La Guardia Field, by Pan American engineers. At the Navy-United Airlines training school, Oakland, Calif., ground mechanics learn by practice and experience the many phases of engine and aircraft maintenance. A course of instruction is given at the Air Transport Rethmeyer School, Naval Air Station, Jacksonville, on the operation and maintenance of various types of radio equipment used in NATS.

The flight orderly, an enlisted man assigned to each plane in transit, is trained to land properly and tie down cargo, to handle the paper work necessary in manifesting cargo and passengers for each flight, and to act as steward.

Air transport officers, many of whom are former airline traffic men, are trained in the squadron to supervise the loading and handling of NATS aircraft at all stations on route. Every job, every operation, requires trained personnel in this large system of air transportation.

Lea Continues Fight For Aviation Bill

Seamanship increases push for right to operate aircraft.

By BLAINE STUBBLEFIELD

Some of the Lea Bill's most determined sponsors have lost hope in it in face of mounting opposition, which still work actively to recruit some big-time land counsel for the steamship line. Rep. Lea himself and others are fighting right on in an effort to get it through.

Shipping people have been trying for years to obtain authority to operate aircraft as auxiliaries to their surface lines. Now they come to grips and say they want the Lea bill amended to let them in, and if they can't get that they will take an amendment to the Merchant Marine Act.

The question whether railroads and shipping lines shall be allowed to compete with the airlines is not covered in the Lea bill, H.R. 3455,

in an earlier bill, H.R. 3421, which deals exclusively with the controversial Section 906 of the existing law. But that makes no difference to the rail and shipping men of the opposition. They don't want it to be stated within the law and action on 3421. They want the decision to be taken by amendment to the bill that has been reported: H.R. 3455.

While the House Rules Committee holds hearings on the Lea bill specifically, the House Merchant Marine Committee is hearing witnesses on civil aviation law in general. Chairman S. O. Skidmore of the latter group last week outlined the history of the shippers' fight for aviation rights. Chairman Emory S. Land of the Maritime Commission had already stated before the committee, referring to H.R. 3421, recently before the House Commerce Committee, that it is necessary for the shipping industry to participate in air transport if the intent of Congress, in writing the marine act of 1936 and the civil aeronautics act of 1938, is to be given effect.

► **Cabing Ruling**—L. Welch, Populist, chairman of the Civil Aeronautics



LOCKHEED'S NAVY MODIFICATION CENTER:

Scheduled to be in use within 90 to 100 days at this \$3,500,000 United States Navy modification base, with possible part-year use, is to be operated by Lockheed Aircraft Corp.'s service division near Burbank, Cal. It will cover 17 acres and include some 450,000 hangars containing shop-floored modifications bays 400 feet long and 100 feet wide.

Board, told the marine committee that his board had made a liberal ruling in favor of a seaplane operator (American Export) and that it had been turned down by the Federal Court of New York. (The court ordered Export Seaplane to divest itself of the airline which the Board had certified.)

Pope took the position that each case (five steamship applications are pending) should be considered on its merits, but that in general it would be better for both industries if armor run the airlines and seamen run the shipping. He stood his ground when opposition threatened to beat on him. It is known that in general the Board favors the Lea bill.

United Fruit Co., Pacific American Steamship, Matine, and other ship operators testified their need for auxiliary aviation. It has been the argument of shipping men all along that Congress should not deny them access to a new invention that will help to maintain American commerce on the sea, namely the airplane. Lea legislation observers took notice when John Burras, heavyweight counsel for the American Merchant Marine Institute, showed up to take a hand in the proceedings.

As it always the case when the Rules Committee ties up legislation, sponsors are saying that the committee is taking undue advantage of its position to make a determination which should be made by the whole body of the House. The

House can't get the bill for a vote by passing a resolution to dismiss the Rules Committee. Or, House Commerce can get it back by getting unanimous consent of the House to return the bill.

It is now claimed by Mr. Recce that a majority of the Commerce Committee is against the Lea bill, although Mr. Lea said that the bill was favorably reported to the House by a vote of 17 to 2. Lea testified before the Rules Committee, answering opponents' objections one by one. The sponsors asked why so many committee members changed their minds. Rep. Maguire suggested that the committee be polled again to establish its present standing.

The "states rights" issue seems dominant right now, but no one underestimates the ability of anti-Lea Bill Republicans and the State Aviation Officials to throw their weight around at the proper time—probably during debate, when there is any. A spokesman for the Republicans in Congress told AVIATION NEWS that his party had not sought an agreement on the civil air law question. He pointed out that both parties are divided on the issue. But observers agree GOP might champion state aviation control along with its states rights plank in the election campaign. President Roosevelt's expressed opposition to one provision of the Lea bill which would set up an independent commission dependent of the Commerce Department.

Official Silence Greets Queries On Who'll Direct Reconversion

Nelson-Baruch deadlock continues with no indication of imminent break; Wilson looms as compromise choice.

The "Ten-Tube" reconversion proposed by WPB Chairman Donald M. Nelson, which would permit very small manufacturers to produce a limited quantity of civilian goods from surplus materials, was the only positive step taken during the week in the direction of reconversion. Still unsettled were such questions as:

Who will direct the reconversion of American industry? On what basis of settlement will contracts be terminated? What policies will control the disposition of government-owned plants and surplus inventories?

These are the big questions and so far they have been met with official silence. Meanwhile, the Nelson-Baruch deadlock continued with no indication of an imminent break, while on Capitol Hill, Congress moved methodically forward with its agreed plan of legislative answers to everything. Simple addition, however, set the total accomplishments at zero.

Experiment Stalled.—Mr. Nelson's proposal for experimenting with reconversion was considered more in

teresting than effective. Chief fault was that the plan was limited to manufacturers so small in size that they could accomplish little. At the level, the plan would lift restrictions of L and M orders from certain small producers and permit them to manufacture civilian goods from surplus stocks which are partly fabricated but useless to owners. At first, it would be restricted to plants in the WPB regions served by the regional offices at Kansas City, Cleveland, and Philadelphia. (See questionnaire on p. 10.)

Group I labor areas—10 persons or less
Group II labor areas—25 persons or less
Group III and IV labor areas—50 persons or less

The Idle Materials.—Nelson described the plan very loosely when, addressing the Chicago Conference of Mayors, he said, "We are planning to cut the feasibility of reconversioning the use, by small concern, of small lots of idle materials in production of consumer goods under carefully controlled conditions. How this will turn out remains to be seen."



THESE EMERGENCY RATIONS MAY SAVE LIVES:

All airplanes operating in the Naval Air Transport Service carry equipment for any emergency. Pictured above are such items as drinking water, ration, first-aid equipment, fishing tackle, sea-sickness medication, oil slick, flashlight and life raft.

This plan, when carried out, will have little if any direct effect on the aircraft industry, since the plants concerned are so small that it is extremely doubtful that any plant having aircraft or aircraft component orders would qualify. It is interesting to observe, however, for if successful, the plan may be broadened to include plants making parts for aircraft.

May Orders First.—What was more significant in Nelson's Chicago speech, however, was his reaffirmation of WPB's policy of reconversion of work on war orders until the military situation shows a green light. "I would rather be two months late in reconversion," Mr. Nelson declared, "than five minutes late in military production."

Meanwhile, the Senate's contract termination bill was completed, but committee members declined to make its contents public until after it had been given more study. Members of four committees went over the proposed measure carefully for introduction probably before the end of the month. A tentative timetable calling for passage by both houses by the first of March has been set, but all remain familiar with Congressional procedures agree that this is optimistic to the extreme. One of the chief provisions of the measure is said to be the establishment of a unit, working under the office of war mobilization, to handle contract termination problems.

House Action.—The House of Representatives also moved to get into step as reconversion legislation. Speaker Sam Rayburn announced that he would shortly name a bipartisan committee to study and report on post-war economic planning and policy, a committee which, presumably, would parallel the Senate committee headed by Senator Walter F. George. Representative William M. Colmer, of Mississippi, is expected to head this committee, which will likely contain five Republicans and seven Democrats. The importance behind appointment of this committee, however, is that it indicates the house is readying itself to reverse the drastic measure and wishes to be geared to give it prompt attention.

Wilson to Remain.—Charles E. Wilson, executive vice-chairman of WPB, visited the White House the same day Nelson spoke in Chicago. Upon return to his office, Mr. Wilson announced that the President had urged him to remain in Washington and that he had agreed to do so, at least until the summer

This renewed speculation on the probabilities of Wilson resigning as a compromise candidate for the mass job of the Nelson-Baruch issue remains unsettled.

It is no secret that Wilson enjoys a warmer relationship with the Byrnes-White House group than Nelson does, and the fact that the General Electric boss continues to remain in the capital despite his oft-voiced wish to leave, suggests that he may have a good reason for his latest announcement.

Reverse Propellers Used as Plane Brake

Device fully as effective as wheel installations, says AAF Materiel Chief.

By ALEXANDER McSHURELY

Reverse propeller pitch for braking airplanes, together with use of full engine power, has proved fully as effective as the best wheel brake installations on airplanes in retarding ground roll, according to recent Army Air Force tests. It was reported last week by Col. R. M. McCoy, chief of the AAF Materiel Command Propeller Laboratory at Wright Field.

Discussing propeller development problems and future trends before the twelfth annual meeting of the Institute of the Aeronautical Sciences, at New York, Colonel McCoy, recognized as one of the foremost military propeller authorities in this country, declared that any general propeller type which does not include both full-feathering and reverse pitch will soon be classed as obsolete.

New Types Developed.—He reported that full-feathering propellers are required under 500 hp jets would be available in several new types developed by the AAF, supplementing the larger full-feathering props which have been in general use in this country for the last five years. The full-feathering prop is particularly desirable for small multi-engine private and feeder type planes because of the relatively poor angle-engine performance of these planes, due to high power loading.

While reports are being given of feathering propellers on military aircraft are not made public, he pointed out that airplanes in this country on the average, are forced by engine failure to feather a propeller approximately 10 seconds. 3,668 engine hours, with a wide variation from 2,000 to 14,000 hours



AAF AND GERMAN FLYING SUITS:

A comparison of German high-altitude flying suits with those supplied to U. S. Army pilots shows radical differences in material. The U. S. high-altitude flying suit (left) is of soft-pliable leather, fully-lined, padded and electrically-heated. Taking damping from the pilot's helmet is an electrical connection for plugging in to heat the suit. Strapped in knee pad and pencil. The German high-altitude flying suit (right) was taken from a Nazi pilot shot down over the English Channel. It has unusually large zippers to speed donning when the pilot is down over water. Electrically-heated, the German suit has a semi-elastic lining, interweaves with a mass of tiny wires.

between various airlines using the same equipment. Still greater frequency of featherings of props on military aircraft can be expected he pointed out, due to battle damage to engines and propellers.

Feathering Results.—Increased performance made possible by feathering the propellers of inactive engines, over the performance position of those propellers had equipped to windmill or had been broken at operating pitch, has saved many aircraft in this war by permitting flight at higher altitudes and additional speed to maintain position in formation.

At least one bi-motor plane, he said, is reported to operate most efficiently at extreme range by feathering the propeller of one engine.

New designs of pitch control will feather a propeller in less than five seconds, he reported. Future trends are for still faster pitch changes,

which may require a new source of power, possibly taken directly from the engine itself, through a system of clutches and couplings for use very short time required in a prescribed pitch range of from minus 30 deg to plus 90 deg as desirable for a modern propeller.

Reverse Pitch.—Using reverse pitch for braking would be a great improvement in today's military operations of that landing maneuver—brake landing using rty, wet and muddy landing strips, he said. Large commercial aircraft and feeder-line planes of smaller size, he predicted, however will find reverse pitch braking of great value. Findings of the army propeller braking tests disclosed.

Reverse pitch braking is most effective at higher speeds.

Wheel brakes will continue to be used in supplement to reverse pitch braking, because they are most ef-

British Publicize Huge Transport Planes as U.S. Firms Keep Silent

American manufacturers forced by military secrecy to stay mum on new passenger craft developed with view to post-war conversion to commercial use.

By SCHOLAR BANGS

While British manufacturers give the world wide publicity for post-war airplanes they intend to build, American manufacturers have been restricted from all public announcement on super-transporters they have entered in drawing boards or in more advanced stages.

►Security Factor Doubtful—Consequently, secrecy covering large passenger transport planes now under way in every major factory on the West Coast becomes questionable, since the Army has halted development of troop carriers to step up production of fighters, bombers and transports already in the air.

It is an ill-kept secret that the big planes in question, already well through the mockup stage, are being offered to air lines as military models capable of conversion to commercial production as soon as the Army gives the "go ahead" signal.

►Still Restricted—As far as the Army's Western Procurement Division is concerned, the planes still are "restricted" military models. Aircraft executives are divided between those inclined to respect the restric-

tions of their "best customers", the Army, and those who feel themselves forced to remain quiet while British competitors make the most of their current monopoly on publicizing their new plane developments.

There is the possibility, of course, that some courageous manufacturer may choose before long to risk military ire by announcing publicly that, within a certain time after commercial production is authorized, the company will be ready to deliver an airline of specified weight, performance, passenger and cargo capacity, and cost. It will be recalled that while the information still was "restricted" officially, West Coast factories began talking about the number of workers they employ.

►EMPLOYEE COMPLAINTS—To Boeing Aircraft Co., Seattle, must be given credit for persistent efforts to suppress upon its thousands of workers the extent of company interest in their well-being. The company's publicity is noticeably heavy with morale stories ranging from shoe comfort advice given women em-

ployees to tire changing service given at the factory. The company currently is publishing a \$750,000 commissary program and construction of a 1,600 seating capacity cafeteria that will open about April 1 as "the largest eating establishment on the Pacific Coast."

►SPEED FLIGHTS—The long-scheduled speed flight, coast-to-coast, of TWA's Lockheed Constellation may take place momentarily. It would formal delivery of the Constellation to TWA at Las Vegas, Nev. Originally planned for last fall, with Army consent, the flight has been delayed by a series of delays and improvements in power plants.

►AIR RACES—With Western and Eastern major aircraft manufacturers will rest the decision of whether the National Air Races will be revived after the war.

►BUREAU—Col. Clifford W. Henderson, Air Transport Command, founder and promoter of a dozen pre-war National Air Races, hopes to revive the air spectacle as a post-war "world event" that will help American manufacturers sell their products to foreign countries.

Without substantial support from manufacturers, there will be no new National Air Races. In Los Angeles, awaiting express orders, Col. Henderson put it this way:

"Manufacturer participation will be the only justification for National Air Races revival, and I think the prestige gained in South America and other countries by participating in these battles will repay their effort."

►Planes and Glory—"The day of the fame-and-glory National Air Races has ended. No Stinson Turrets or Art Chevrons will have the honor to build 'back yard' racing planes capable of competing with the products of the aircraft industry."

"There is no doubt in my mind that, with industry support, the National Air Races would be a tremendous big-official success of staged immediately following the war. We could expect a record-breaking crowd to see, for example, what a 2-25 and similar ones could do, stripped of armament, in a 200 or 25-mile closed course Thompson Trophy race."

►Aircraft Shows—"More certain after the war will be the staging of national aircraft shows, probably in New York, Chicago and Los Angeles in successive years, and interspersed smaller 'Westernization' shows at population center airports."

Col. Henderson, whose air races have been praised as "progress"

spectacles and crowned as "Bessie Rodgers", gave his views at the scene of his first National Air Race, staged in Los Angeles in 1928. The down races he and his brother, Phil, staged grossed \$4,000,000, he estimates.

WPB Issues Ruling On Aircraft Aluminum

Summary of week's activities in U. S. and war agencies.

Inventory rules for aircraft aluminum extrusions are applicable until they are revoked, the War Production Board pointed out. They have been extended indefinitely. At the same time, WPB said inventory provisions with respect to deliveries of aluminum extrusions required for aircraft production have been suspended until June 30, after which the normal provisions of CNP Regulation 2 shall apply.

In the event of conflict between production and delivery schedules under the Controlled Materials Plan and delivery schedules under General Scheduling Order M-383, the General Scheduling Order will prevail, WPB said. The order is consistent with delivery of critical products, while CNP schedules production and delivery on the basis of materials available for production of finished products. Resolution of conflicts is provided for in Direction No. 1 to CNP. Inventory rules will apply.

►OFA WAD Order—The Office of Price Administration has announced tightening of the previous governing producers' maximum prices for Douglas fir, white fir and hemlock. The order is designed to assist enforcement officials in obtaining strict observance of ceilings.

►Defense Plant Corp.—As a result of its contract with Reynolds Metals to provide plant facilities at Chicago, has been announced by Defense Plant Corp. Cost will be approximately \$1,500,000.

DPC also announced an increase in its contract with General Motors to provide additional facilities at plant in Trenton, N. J., to cost \$485,000, resulting in an overall commitment of about \$11,000,000.

►National Labor Relations Board ordered Elmerco for certain employees in a number of aircraft plants. At the Glenn L. Martin-Normanna Co., Fort Crook, Neb., plant engineers and apprentice engineers in the two housing and ventilating departments and maintenance department of the main plant.



The "Man" Takes On Multi-Star of the Naval Air Transport Service fleet of landplanes and flying boats in the Martin Mars, world's largest flying boat, shown here taking on mail on its first official flight in NATS operations. This plane recently landed at Hawaii, on her first Pacific operation, furnishing postoffice commercial flights overseas.

will vote. At the same plant first, second and third-class carpenters, wood-tool makers, wood-working machine operators, box makers, saw their help, and production and maintenance employees, including program and plant employees, will vote. Hourly paid plant-protection employees will vote for or against representation by UAW-CIO. All these elections must be within 30 days of Jan. 19.

►NLRB dismissed complaint against Chrysler Corp., Highland Park, Mich., on charges filed by Int'l Union, United Automobile, Aircraft and Agricultural Implement Workers of America, Local 114, UAW-CIO, finding that company had not interfered with employees' self-organizational rights, and did not discriminate discharge an employee.

Additional elections have included Douglas Aircraft Co., Inc., Omaha, Neb., where sheet metal maintenance workers and leaders elected Dec. 28, the Sheet Metal Workers Int'l Assn. Local 124, AFL, Ross Gear and Tool Co., Lafayette, Ind., producing and maintenance employees elected on Dec. 30, Int'l Union, United Automobile, Aircraft and Agricultural Implement Workers of America, UAW-CIO, and Ford Motor Co., Iron Mountain, Mich., election for plant-protection

employees on Jan. 11, to Local 531, United Automobile Workers of America, AFL.

►War Dept announced authorization for construction of engineering, maintenance and inspection buildings, including grading, paving and utilities at Bedford Airport, Bedford, Mass., to cost about \$37,410. An initial authorization of \$500,000 was awarded for construction of runway improvements, widening runways and extension of existing night lighting system at Brookley Field, Ala. The Department authorized construction at McClellan Field, Sacramento Air Depot, Calif., of an extension of existing runways, construction of 75-foot-wide taxiways, including 125-foot-wide shoulders, and necessary drainage. Initial authorization is \$583,880.

Another contract has been awarded for construction at Matagorda, Texas, Bombing Range. Estimated amount of contract is \$1,011,464.

Chief of Engineers of the War Dept. has let contracts for construction of various Army Air bases, depots, auxiliary fields, and flying schools, amounting to approximately \$1,353,550. Largest single contract awarded was \$237,532 for construction of hangars and buildings at the Army Air Base, Blythe, Calif.



TOSSING CARRIERS

Flight deck of a Navy aircraft carrier is shown during heavy weather in this new Navy photo. According to the official caption, planes wait take off frequently under such conditions as this.

Private Flying Program Expected To Taper off Post-War Production

Civil aircraft believed likely to increase to half-million in next five or six years compared with present total of private airplanes of approximately 25,000.

The ability of the manufacturer to produce and sell a product which has utility measured in terms of economy, safety and ease of operation is in competition with other forms of personal transportation will be an important factor in the future operations of personal aircraft manufacturers, whose views on post-war questions are beginning to take definite form.

It is the opinion of many aviation observers that private flying may well hold the key to keep aircraft production from sinking to a distress level and there are those who believe we can run our civil aircraft up to around half a million within the next five or six years as compared with the present total of approximately 25,000.

Cubsucks—With cutbacks in aircraft production schedules this year

on trainers, liaison and other light planes, the personal aircraft manufacturers are faced with immediate problems which, while related to those of industry generally, still require a different approach and a different treatment in the opinion of John E. P. Morgan, manager of the Personal Aircraft Department of the Aeronautical Chamber of Commerce.

In addition to selling a utility product in competition with other forms of personal transportation, Morgan points out that there must be a willingness on the part of the public to help create necessary landing facilities, in the form of small private airports, community airports, and county, state and federal developments in the form of landing strips and other landing facilities.

Challenge—Further, Morgan be-



Personal Plane Expert; John E. P. Morgan, who is directing the program of the Aeronautical Chamber of Commerce to further the development of personal aircraft operations in the post-war years. Morgan is manager of the Chamber's Personal Aircraft Department, having long been a leader in the private aircraft field.

lieves, there must be cooperation by the public in general and public regulatory bodies in particular in efforts to keep or reform regulation to a minimum that will be in the public interest.

Morgan sees these broad principles as a challenge to the personal aircraft manufacturers and he sees a need in urging that all concerned must talk, think and design an "integrated" unity of products, together

with the promotion of landing facilities, "the thousand dollar—not the ten million dollar kind."

Post-War Plans—He believes it necessary to make private or personal flying as free from complications as possible by the boards of safety, and warns that the industry can not assume that the public will be ready to take to the air immediately in huge numbers, despite the vastly increased public interest and that which will be naturally engendered by the return of airman new on military and Naval service. The industry will have to have something to offer and there will have to be landing facilities available.

The problem of the disposition of surplus aircraft, a complicated and many-sided question which a large part of the aircraft industry will have to solve, will not affect the manufacturers of personal aircraft to any great extent, in Morgan's opinion.

Grasshoppers—The Grasshopper-type planes used by the Army will have little private utility since the war is over and with the cut-back in the light-plane production program, the few planes available for private sale after the war will not touch the potential commercial market.

While reconversion will not present as great a problem to the personal plane manufacturers, all have new types in mind which will require some re-tooling, new jigs and other equipment.

Conversion to Parts—Many aircraft companies, whose production programs have been curtailed, are turning to parts, as exemplified by Cessna Aircraft which recently announced its production facilities were being converted to manufacture of component parts for tactical bombers.

Need for twin-engine training planes, which Cessna has been making, as well as need for utility cargo planes, is declining. This will turn these facilities as well as those of other companies in different uses but is not expected to affect their over-all working programs to any great extent.

Union Labor Progress—There has been little reaction from the industry to the urging of Richard C. Frankfurter, director of the CIO Civil Aeronautics Workers aviation department and vice-president of the union, for mass production of 1,000,000 or more light passenger planes to be sold at less than \$1,000, but the personal aircraft manufacturers are studying all angles of future production.



FUSELAGE SECTIONS OF LIBERATORS JOINED:

Here is the Ford Willow Run plant, working on B-24's, in an unusual picture of the mating of top and bottom sections of the rear fuselage of one of the Liberator four-engine bombers, now in mass production. Below, the huge tail piece is fitted into place, dropped from an overhead crane.

Douglas Proposes Tapering-off Policy

Douglas plan merely to close plant at end of war.

Donald W. Douglas, in a deposition with an employee on the future of aviation, declared he personally intends to remain in the aircraft industry and hopes to keep as many as possible of those employees who desire to remain with the company. He referred to the much discussed statement recently attributed to him by Time, "Shut the damn shop up."

and brushed away what he termed the uncertainties and conditions attached to it.

Doesn't Shrink—In this connection, Douglas was asked "Many of us here (employees) would like to stay on after the war. Can you give me some idea of what might be shared for our company? For instance, people are saying that your solution to the post-war problem is to 'shut the damn shop up' is there any truth to that?"

Douglas' reply to this question, published in the Douglas Sports Market Airline News, was "No truth whatever. The statement to



FORD'S NOVEL FUELING SERVICE:

A newly completed B-24 is shown taking on 100-gallon fuel at Willow Run's specially designed fueling station. Such airman believe this apparatus might be adopted

for commercial use. Planes could taxi under the bridge, get gas in both wing tanks simultaneously, while passengers and cargo were handled.

which you refer was part of an interview on many subjects, but only part of my remarks were quoted. The result, of course, was misleading. I was asked by the reporter what we would do if the government overtook and without warning canceled all our contracts. I told him I was confident that nothing like that would happen, but that if it did, there is actually only one thing we can do. If there is no work for a plant, you have to close it up until something is found to keep it in operation.

Release Program—"That's not a plan—it's a condition. Planning is something else again, and we are not neglecting that either. My own idea is that, when the time comes, contracts should be tapered off and employees released gradually at a rate which will give them an opportunity to find their way back into normal business and industrial life. To provide assistance during this period of readjustment, we have suggested to the government a plan for post-war bonus. This would be in the form of an incentive pay increase in wages, based on increased production and length of service. It would be cumulative and payable only after the war, or on final termination of employment."

New P-47 Props

A substantial number of Republic P-47 Thunderbolt fighters will be equipped this month with Hamilton Standard four-bladed hydromatic propellers.



DOUGLAS 'DAUNTLESS' LAUNCHED:

This plane appears to be taking off from the roof of the assembly building at the Tulsa plant. Actually it was being launched from the end of the building by an overhead crane after completion, one of many being turned out by Douglas Aircraft.

This equipment is being installed and the new blades are like those on the Grumman F6F Hellcat, except that there are four instead of three. With this installation, four of our newest fighters will be equipped with Hamilton Standard propellers, the F6F Vought Corsair and P-60 for the Navy, and North American's sensational new P-51 Mustang for the Army in addition to the Thunderbolt.

Plane Firms Vie For Output Records

Covair production tops all in weight of planes produced

In measuring aircraft production, it all depends on the yardstick used, whether by total plant or by a single corporation, or by type of plane or total output. On the basis of production figures for the aircraft industry for 1943, compiled by the Aircraft Production Board, Consolidated Vultee Aircraft Corp. is the world's largest producer of airplanes.

Tom M. Gardier, chairman of the board, said the company last year delivered more airplanes by number and by weight than any other manufacturer and he cited a telegram from the Board, which congratulated the company on its 1943 output and which disclosed that "Consolidated Vultee delivered more than 136,000,000 pounds, including spares, compared with 115,000,000 pounds delivered by the second largest pro-

ducer, the third largest producer delivered 73,000,000 pounds."

Measured By Weight—Here, the weight of the airplanes produced is the yardstick, but Gardier added that "Consolidated Vultee in 1943 delivered over 15 percent by number, and over 16 percent by weight of all aircraft built in the United States."

Produces Heavy Bombers—He explained that "the difference between numbers and weight in percentage figures is due to the fact that the company produces more heavy four-engine bombers than any other manufacturer."

The apparent conflict of manufacturers' claims of various companies is due to the method of computation and actually all claims advanced are correct on the basis used.

Other Records—Grumman, for example, using its November figure, said its 960 airplanes make it the world's largest manufacturer of combat aircraft and, counting in the spares, November output was 953.

Republic in its two plants had record breaking production in November and December, and was congratulated by WPB for "having produced more airplanes of a single type than has ever been produced by any other single aircraft manufacturer in a single month." Republic does not have to bow to anyone with its great P-47 Thunderbolt fighter.

Bell and Curtiss-Wright—Bell Aircraft and Curtiss-Wright were well up in the month's production and in the over-all output. Douglas was running close to Consolidated.

20,000 P & W Motors Produced by Ford

More than 20,000 aircraft engines of Pratt & Whitney design have been produced and delivered in the Army by Ford Motor Co. since Pearl Harbor.

The engines, Ford Motor said, although built to Pratt & Whitney specifications, were subjected to changes in production methods to adapt them to mass assembly.

Developments—Among these developments, Ford said, were centrifugal casting of cylinder barrels constructed sub-assembly-painting and inspection, "burning out" of small parts manufacture to other Ford installations, and deming of multiple-purpose machine tools.

The 1600-hp. radial engine manufactured by Ford is used in such aircraft as the Republic P-47 Thunderbolt, the Martin B-26 Marauder bomber, and the Curtiss C-46 Commando transport.

"Helldiver" Modified At Allentown Plant

First planes expected to be completed this week.

Modification work on the Navy's new dive-bomber, the Curtiss-Wright SB2C Helldiver, it can now be disclosed, is being performed at the Allentown division of Consolidated Vultee Aircraft Corp.

R. E. McMahon, division manager, said an unspecified number of these planes which distinguished themselves in their initial combat actions in the Pacific, have been flown to the Allentown plant and are now undergoing modifications.

First Planes Ready This Week—It is expected that the first completed planes incorporating the latest changes in design and equipment will have been delivered hither-to by this week. Design of the Helldiver, it was recently revealed, permits it to be launched on the Navy's baby flat-tops, and the Navy has permitted announcement that improvements in design and equipment have been made since the Helldiver was first introduced during which this plane "weight deviation on the enemy," in the words of the Navy.



NAVY PARACHUTE TESTER:

Striking test of the new parachute testing tower built for the Navy by Pioneer Parachute Co., enabling engineers to test "chutes under speeds comparable with those attained in actual flight when aircraft are forced to bail out. Dynamically-designed recording device pierces engineers complete data and inspects information on every stress of actual performance.



REVISED FAIRCHILD UTILITY CARGO PLANE:

This revised utility cargo plane has been completed by Fairchild Aircraft Division in Hagerstown, Md. Designated as the UC-41K, it is similar to the four-place UC-41A, but is powered by a Ranger 200 horsepower inline engine instead of the 165-hp. Warner radial. Wing

area is 192 square feet, with a span of 35 feet, 4 inches. The overall length has been increased to 25 feet, 10 inches. General construction, interior arrangement and other details are identical with those of the UC-41A. Forwarder, which will continue in production shortly.

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Used in the aircraft industry for crucial engine lubrication, new Aero Mobiloil is to match the new Aero Mobilgas.

Latest development from Socony-Vacuum's 76 years' lubrication experience, the new oil has already proved its exceptional wear-resisting qualities.

To grueling flight operators, it has kept engines free from ring-wedging deposits, and reduced ring wear to a minimum.

New Aero Mobilgas and new Aero Mobiloil combine to furnish and protect Flying Horsepower for the planes of Today—and Tomorrow.

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Get the Facts on the NEW Aero Mobilgas-Mobiloil

COMMENTARY

Long-Range Escort Fighters Ease Work of Busy Bomber Crews

Allies eliminate good part of costly toll of daylight bombing by providing defensive cover all the way and back.

Analysis of the recent air battle over the heart of Germany during which heavy blows were inflicted on three important aircraft factories producing Focke-Wulf 189 fighters (Dachauwerk), ME-110 and Ju-88 twin-engine fighter-bombers (Bismarck and Halberstadt) clearly indicates that no deep daylight penetrations will be made without long-range fighters passing wherever all the way. Some light is also thrown on the shuttle or relay method of carrying out those vitally important escort missions.

Early Daylight Missions—In the first weeks of the war (September, 1939) the Royal Air Force Bomber Command sent its Blenheims, Wellingtons and Whitleys bombers in daylight raids over Germany, but soon gave them up as altogether too costly. One year later the Luftwaffe tried it over England, sending over

its last but lightly armed Heinkel and Dornier bombers, escorted by ME-109s, Heinkel 111s and ME-110s.

The sluggish, heavily armed Heinkel and Dornier (the latter also having a slight edge in speed), instead of dog-fighting with the fighters, refused to be drawn into combat and dashed into the bombers, inflicting such devastating losses the attempt to knock out the RAF and bomb Britain into surrender had to be given up.

We are now witnessing the battle of Britain in reverse, with the American strategic bombing forces carrying the ball, Fortresses and Liberators rushing for touchdowns, with Thunderbolts, Lightnings and Mustangs bombing over hostile territory.

First American Raids—Two years after the battle of Britain, the first

daylight raids over occupied enemy territory were carried out by Fortresses of the Eighth Air Force. The only available escort force were squadrons of Spitfires, and both British and American pilots turned in an outstanding job with this ship, especially when larger numbers of the high altitude Mk IX model became available.

The serious limitation was range and the Spitfire was only able to escort the Fortresses a fraction of the way. It was after they had to turn back and the Forts were going it alone that aircraft of FW-190s and ME-109s came in for their revenge attacks. For a time it appeared that the amazing ruggedness of the American heavy bombers, plus the skill of the gunners and effectiveness of the .50-caliber high-velocity guns might give them the edge over German defense.

Developments in 1943—Through the winter of 1942-43 the Eighth was obliged to carry on with a severe loss factor while the Main High Command sharply improved their defense equipment, techniques and tactics. By spring, American Thunderbolts of the Eighth Fighter Command were beginning to carry out escort missions and soon proved themselves more than a match for the Luftwaffe's best fighters, especially at high altitude. Hence, while better than the Spitfire's, was still a limiting factor, the earlier missions extending only to such points as Antwerp.

By late July, however, auxiliary gas tanks enabled the P-47s to



RCAF Discovers Salvage Operations: Forcing a stream while getting the Ventura bomber fuselage out over a 14-mile back road out through strip, wilderness in

typical of the problems faced in salvage operations of the Royal Canadian Air Force, which have been published only recently.

make a round trip of some 600 miles to meet returning Fortress formations deep inside Germany and escort them to safety at the time most needed, when the crews of the big bombers were exhausted from the strain of fighting their way to the target, dropping their eggs, and battling their way back with damaged ships, guns (and sometimes personnel) out of action, and ammunition low. A few weeks later (Sept. 27) they were able to accompany the B-17s all the way on a 650-mile round trip to London and back in the final "bad weather" mission, on which Mustangs planes dropped British marker bombs to locate the target.

Advantages of Escort—Experience has proved that several definite advantages are derived from all-the-way-there-and-back escort. Bombing accuracy was greatly improved. Bomber losses were held down to a minimum. Even partial escort on long-range operations saved the bombers' ammunition and fighting energy of the gunners for the part of the trip when they were on their own, and meeting the returning bombers enabled the fighters to protect the crippled. Another notable gain was given a terrific boost. A squad of Thunderbolts, Lightnings or Mustangs is literally the most beautiful sight in the world.

Long-Range Fighters in Italy—After an excellent record of securing the Fortress of General Doolittle's Strategic Air Force in the Mediterranean (now the Fifteenth), an improved model of the Lightning, with even longer range, has

been according the British-based Forts and Liberators since October. Newest member of the team is the Merlin-powered Mustang, traveling fastest and furthest of all, in action since December, with a brilliant part in the triple-target mission of Jan. 11.

On deep penetration missions, several relays of fighters have to be used, starting with the Thunderbolts, then the Lightnings and finally the Mustangs to the target and part-way back. In withdrawal escort, Lightnings take over when the Mustangs are out of ammunition, then the Thunderbolts, and sometimes a final relay of Spitfires, nearest the home base, although these are now regularly used in escorting the medium-range Mustangs. It is quite a complex operation. Now, as never before, the success of our air offensive is in the hands of the fighters.

—NATHANSON

Salvage Work Saves Many RCAF Planes

Recovery of aircraft presents difficult engineering problems.

By JAMES MONTAGNES

Royal Canadian Air Force airplanes (many aircraft brought down in the southern half or in other isolated areas, and either used by a party of these aircraft for several weeks on other planes or again makes the aircraft serviceable. A few details have been released.

Ventura bomber was forced down on a small lake in eastern Canada in early spring, sank to its wings. Radio brought rescue for the crew and a salvage team to bring the ship out, even though the lake was 14 miles from the nearest road. Six poles 54 feet long out from the forest were used to keep the plane from sinking to the bottom of the lake. The instrument and engine and then the wings were dismantled, towed to shore as the ice, then the plane was pulled ashore. Meanwhile the Canadian Army had cut a road through the virgin bush. Tractors brought the plane and its parts out over this bush road, five weeks after it had landed on the lake. Within a short time the aircraft flew again.

Mountaineer Salvage—A Hudson bomber forced down on a mountainside in eastern Canada had its engine removed, and was then lowered down the mountainside for three miles to an ice-covered lake, where the engine was refitted and the plane took off under its own power. A Cessna amphibian loaded with depth charges, sank in water somewhere off Newfoundland. In rough seas the RCAF salvagers were grappled for the aircraft, and brought it to the surface without the depth charges being disturbed.

A twin-engine Anson bomber was forced down on its keel on a Newfoundland island. The crew was rescued without much difficulty. Then aircraft kept the icefree with its plane in view till currents drove it to shore. After that the Anson was brought ashore and made to fly again.



PLANES LEAVE VAPOR TRAILS IN SUB STRATOSPHERE:

Vapor trails left by warplanes of the United States Eighth Air Force soon before Flying Fortresses in this new AAF photo. The curved trails leading upward

were made by the fighter escort on a raid over the heart of Nazi land. Machine guns are visible trailing from the nose of the leading Fortress.

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SHEETS—**



PEELING A PROSPECTIVE PLANE SKIN. With this aluminum sheet he chopped to each or, all the plane manufacturer who ordered it save valuable man-hours by having it prefabricated into a complete plane part by skilled Reynolds workers.

**BUT FINISHED
PARTS—**



NO LOSE TIME when you use Reynolds Prefabricated Plane Parts. Completely finished parts can go right on the assembly line as soon as they are received at your plant. This modern method, pioneered by Reynolds, saves you manpower, plant space, time and scrap.

when you use **REYNOLDS complete Prefabricated Plane Parts Service**

- **SAVES MANPOWER**
- **SAVES SPACE**
- **SAVES TRANSPORTATION**
- **SAVES SCRAP**

From our global battlefronts come the never-ending plans, "Give us more planes, better planes" . . . "deliver them faster." In the face of this, fabricating aluminum sheets into plane parts in your own plant takes manpower you can ill afford to spare.

By using Reynolds prefabricated plane parts service you can use all of your manpower to build planes.

- It saves you manpower because every aluminum piece you receive is a finished part, ready for immediate assembly.
- It saves plant space because you do not have to maintain excessive stock piles, do all your own fabricating or store and segregate your own scrap.
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- And it saves on scrap because the 30% of every aluminum sheet that becomes scrap is re-

ested in our plants in a matter of hours instead of months.

Reynolds finished parts saving thousands of man-hours

Airplane labor amounting to thousands of hours is being saved by Reynolds prefabricated plane parts. In fact, Reynolds, the first aluminum manufacturer to furnish complete plane parts from aluminum sheet, is supplying complete parts to every leading manufacturer of combat planes.

It is this trust of doing to lead—during to be different—that has spurred on Reynolds, in 4 short years, to where its operations now cover 40 plants in 14 states, plus its own source of Bauxite from which aluminum is made. This urge to constantly move ahead is what keeps Reynolds men on a ceaseless search for new ways to make aluminum better . . . make it easier and cheaper to use.

Take advantage of Reynolds' resources, equipment and engineering skill. For any problem you may have in working with aluminum, no matter what it may be, you'll find Reynolds able to handle it in the most practical way. Reynolds Metals Company, Aluminum and Parts Division, Louisville, Ky.

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America on the Battlefronts of the World

Among the many utility services performed by Lawrence Auxiliary Power Plants aboard America's long-range battleships is the operation of bomb hoists, galley hot plate, lighting, heating and ventilating equipment, main engine starters and communications systems.

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Built to civilian standards of precision, versatile Lawrence Auxiliary Power Plants can be depended upon for that extra margin of performance that may mean the difference between defeat and victory.



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LAWRENCE AERONAUTICAL CORPORATION LYNDEN, NEW JERSEY, U. S. A.

TRANSPORT

CAB Examiner Approves Northeast's N.Y.-Boston Route Application

Report of Thomas L. Wren cites local nature of traffic and benefits to be obtained from constructive competition with American.

By MERLIN MICKEL

The case of the smaller air carrier has been furthered with the recommendation by a Civil Aeronautics Board examiner that one such line be allowed to participate in the important New York-Boston route. Examiner Thomas L. Wren proposed to the Board that Northeast Airlines be permitted to share the route with American Airlines, one of the "big four" and the only carrier now certificated between these two points, and that American be allowed to add a few intermediate points to its own route.

He gave some consideration to the plea by Central Airlines, another of the smaller operators, that it be granted a leg from Boston to New York, but concluded that its application, along with those of Seaboard Airway, Eastern Air Lines, Transcontinental & Western Air, and United, should be denied. As earlier suggested by Pennsylvania Central Airlines to get into the case was unsuccessful.

Decision Landed—Northeast, which also would receive some intermediate stops under Wren's proposal, immediately lauded his report as "the most important development in the air transportation history of Boston," and said it was plainly a step to orderly development of the Company's air transportation pattern.

The recommendation, as to Northeast was of interest in view of the contention by some smaller airline operators that economic substance exists between small lines and large, with the latter participating in 81 percent of the business. Wren left the door open to further route franchises in the New York-Boston segment, however, with the observation that "if, in the post-war period it becomes apparent that the traffic in this area equals the hopes of the applicants or expands beyond that, then further operations into this territory can be authorized in the light

of conditions as they exist at that time." He concluded that authorization of Northeast to operate between Boston and New York would constitute an "orderly expansion of air transportation by forming an integrated regional New England operation and at the same time provide that carrier with needed financial strength."

Recommendations—Specifically, his recommendations were that Northeast's certificate for AM 27 be amended to include Lawrence, Worcester, New Bedford, Hartford, Providence and New York-Newark, that Boston be designated an intermediate point on 27 rather than a terminal, that Northeast be authorized to operate nonstop between all points on the east leg (Boston-Portland-Caribou) of 27; that American's certificate for AM 18 be

amended to include Worcester, Waterbury, New Bedford, New London and Ansonia-Branford-Bathurst as intermediate points, that Worcester and Hartford be included on its AM 21 as intermediate points, and that other applications be denied.

Evidence at extended hearings in the route case showed clearly that traffic to and from Boston is primarily local in character. Wren's report stated: "Citing desirability of a pattern giving 'appropriate place' to both intrastate and regional systems, he asserted that, because of the local character of traffic between New York and Boston and needs of local carrier applicants for revenue, such an operator could be expected to put forth more effort to develop and compete for local traffic than would a long-haul carrier. "It would appear desirable," he said, "to have an intrastate local carrier, whose basic subscriptions of one long-haul carrier and the conclusion of another would place those included at a competitive disadvantage."

Competition—Although traffic potential between New York and Boston is heavy, Wren decided against more than one additional carrier between them. Not only would granting the route to more than one smaller carrier tend to lower benefits from the additional mileage, but possibilities of destructive competition would be increased. The route is comparatively short—104 miles.



ARMY PLANES TO MICHIGAN CAP:

Mike Army planes have been assigned the Michigan Civil Air Patrol in the interests of Army Air Force cadet procurement. Capt. Howard Manning (left), group commander in the Michigan wing of the CAP, is shown with Lt. Don Davidson, Michigan wing pilot, at delivery of one of the ships.

Northeast's present route redeign is less efficient, Colwell's 225. The hearings disclosed that 34 percent of Northeast's business moves through Boston to points south, the eastern fared. Northeast estimates it will carry about a third of the total estimated business between New York and Boston, if the Board grants the new route.

"Reimbursement of Northeast is New York," Wren said, "would give this carrier access to an area containing almost 15 percent of the population of the Nation and extend its present system to a natural terminal point. With this addition, Northeast would be in a position to develop into a strong regional New England transportation system which would constitute an important step in making this carrier commercially self-sufficient."

Revenue—Northeast said at the hearings it thought American needed the stimulus of competition on AM 16 American said it feared competition where it will bring better service and is not destructive, and concerned with Northeast that the New England area is an entity where density of population, industrial area, and proximity of communities make for easy transportation problems. Wren contended that the New York-Boston route "has sufficient traffic to support competing service without unreasonable increase of total operating cost and without impairment of the financial status of the existing carrier," and that such competition "would not be wasteful or destructive."

His study of revenue estimates submitted by the various applicants led to the assertion that "it is apparent that the service between New York and Boston proposed by any of the existing carriers can be operated without loss or at a profit before mail compensation."

Equipment Estimates—Northeast predicted no estimates on use of CW-33's (Curtiss two-engine ship), DC-4's and DC-3's, basing the last on its operating experience and the others on manufacturer and contract operating data. For CW-33 equipment, additional revenues were estimated at \$2,615,604 per year, or \$1.18 a mile, and additional expenses at \$2,384,623, or 77 cents a mile, with a net income of \$1,231,181, or 39 cents a mile. Revenue from DC-4's was estimated the same as from CW-33's, with expenses at \$2,627,359, or 84 cents a mile, leaving a net income of \$268,245, or 21.9 cents a mile. With DC-3's, revenue was estimated at \$3,638,860, or 80 cents per mile, and expenses of \$3,617,613, or 84.8 cents a mile, leaving a net income of \$21,247, or 21 cents per mile.

American estimated that, with the additional service it requested on routes 10 and 21, its additional annual passenger revenue would amount to \$412,126. Mail revenues were estimated at \$12,914 and express revenues at \$12,124. Additional expenses on 15 were figured at \$471,890 and on 21 at \$26,030, a total of \$557,920, leaving a net profit of \$407,794 estimated for the two routes.

The history of the central issue in

connection with Northeast was discussed at some length in the eastern carrier's report. Last August the Board found that Northeast was controlled by the Boston and Maine, Maine Central and Central Vermont Railways. Wren concluded, however, that subsequent developments have left the railroads no longer in control and the case "has disappeared from this proceeding."

Extension of Civilian Pilot Training Urged

Readolph sets program at national convention.

The federal government has a responsibility to continue its sponsorship of civilian pilot training, says Rep. Jeannette Readolph of West Virginia, and he is confident that 20 to 30 million dollars a year will not be too much for the purpose, if it is wisely spent.

Readolph told the National Association of Colleges and Universities in Aviation Training that the past five years has seen a well-advanced development of approximately \$250,000,000 in a pilot training program for \$50,000 young men, under Civil Aeronautics Administration supervision. Representatives of about 100 institutions from seven mid-western states, gathered at Kansas City, heard him speak.

Economy—The West Virginian admitted Congressional stress on economy will increase, and assurance must be had that expenditures are justified. But "necessary funds will be provided if we fully realize the dividend paying investment which has been made in this type of governmental leadership."

He believes the people will support a peacetime program, through the educational system, that would create a "reservoir of flyers" if another emergency arises after the present war.

Air Shopping Service

For American Airways talks of a shopping service by air operated by its Mexican affiliate, Compania Mexicana De Avionacion, whereby important machinery and repair parts are being ordered to Mexican industries in hours rather than the days that would be needed in surface transportation. The service was instituted in 1931 as a facility for persons desiring items from Mexico City but without commercial contact there.

Plane-Ship Travel Analyzed in Study

Overseas air lines may approach steamship rates in several years, ATA research chief says.

Passes may have a slight edge over steamships in their competition with the latter after the war, despite inability to provide some luxury ship travelers enjoy.

This is the belief of Dr. Lewis C. Borrell, an engineer in his current report on possibilities of overseas air passenger traffic. Borrell is research director at the Air Transport Association. The report, sent heads of member airlines, reflects only his own views.

Competition—In his consideration of competition with steamship lines, a subject of primary interest now in view of the increasing sentiment on Capitol Hill, where members of the House Merchant Marine Committee have been advocating that steamship operators be permitted to enter air commerce, Borrell discusses the question whether in the future the airlines can penetrate the overseas travel market.

"Some," he says, "regard the maintenance of airline speed of 200 mph as better, together with post-war fares conceived to approach if not under-cut existing steamship first- and second-class fares, as virtually assuring the diversion of those types of travel from ship to plane."

Eventually—Others believe the may be happen eventually, but think it more likely that airlines will be able to displace air transport in the course of some 15 years of growth has only been able to penetrate the diminished volume of rail passenger first-class travel, to the point where air is one-fifth or one-sixth of pre-war civilian travel of that type, is it likely that overseas operation can in five years lift even one-third of travel from the clasp of the ocean liner?

Still others feel, he feels, that the combination of transportation, diversion and relaxation, plus safety, found in the surface liner, will keep a hold on a large portion of traffic despite lower speed and the clear rates that the future may bring.

Economic Merit—On basis of economic merit, he decides, competition between the two would be a matter of mobile acceptance in terms of features, value of time saved, reaction to safety records, and desirability of spending a vacation without various concerns as opposed to the relaxation and security found as passenger ships.



FAMOUS TEXAN GETS AMERICAN PIN:

Amos G. Carter (left), Fort Worth, a member of American Airlines' Board of Directors and long an aviation enthusiast, received a 15-year service pin from A. N. Karp, American's president, at the airline's Pioneer Dinner in Dallas.

Borrell suggests, however, that "within the next three years or so, airline trans-oceanic rates should approximate current steamship first- and second-class fares. For such classes of travel, airlines and steamships may offer the least transport charges at no greater differentials than now obtain in rail pullman and domestic airline lines—steamship rates being supported by subsidies should engage in rate wars to return traffic."

Safety Factor—Although he admits public opinion might now regard steamships as safer, he recalls that the safety factor has not deterred the growth of air transport over land. Plane engines have improved, and problems of de-icing are now solved.

Super-Luxury—Kisers—As to whether competition will be confined to economic levels, Borrell is uncertain. Shipping has been lost during the war, and new losses loom. But many luxury liners were in the former group, and "shipping opinion seems to agree that no more super-luxury liners, such as the Queen Mary, will slide down the ways," and "it is not clear, therefore, that many passenger ships will be available for overseas commercial operation for two years or so after termination of the conflict."

Advantages of Air Travel—The ship "will continue to attract those desirous of economical journeys, at

least for a time, those who still have inherent fear of air transport; those who secure relaxation at sea." One disadvantage of the surface vessel is the necessity for feeding, heating and amusing passengers, and taking care of the crew—a considerable expense because of the time element. "And it must build into, transport and operate all the utilities which a community requires, most of which mean little to air transport."

Borrell thinks that for a three plane designers and operators may have to sacrifice some weight and space to such recreational facilities as lounge, bar and "even short promenades. But every addition to weight and space erodes severe cost penalties in the air over long distances, and must limit such facilities to modest proportions as compared with the offerings of luxury ocean liners. Air transport should hesitate to duplicate such prestige-advertising features."

Modern Travel—Borrell reaches the conclusion that "it just remains for the American consumer is a guide, the passion for speed, plus modernism and excitement, as well as business efficiency in employment of time, is likely to gain the day. Notwithstanding which it is quite conceivable that the ocean liner of moderate speed and comfort, combined with economy, may continue to enjoy in substantial volume the relaxation type of travel."



TWA DOES REPAIR JOB:

Transcontinental & Western Air is accepting the favorable slogan "The Transcontinental Line" as its fleet for the war effort. It's part of the Fourth War Loan Drive. In this publicity picture Miss Ruth Stirling, TWA hostess, appropriately holds a war bond in her hand.

ROCKET MAIL ROUTE ... 8 MILES UP?

The Makers of Fafnir Aircraft Ball Bearings Present Number One in a Presentation of Future Flight Possibilities—with Models and Settings Created by Norman Bel Geddes and Company.



HIGH SPEED JET PROPULSION MAIL PLANE

FEATURES—PLANE CONSISTS OF CENTRAL TUBE CONTAINING COMPRESSOR AND OTHER COMPARTMENT FOR PILOT AND MAIL AND LOWER COMPARTMENT FOR FUEL AND MAIL. PLANE IS EQUIPPED WITH RETRACTABLE LANDING GEAR.



By to the stratosphere in seconds and arrived in six minutes, the high speed Jet Propulsion Mail Plane may soon be the real mail carrier handy across some 40,000 feet above earth's skin.

Industry cannot afford to overlook advanced ideas. As an industry, it has turned so many daring prophesies into successful achievements that it has earned a leading position in world progress. As the pioneer manufacturer of aircraft ball bearings, Fafnir has seen this evolution achieve new performance records in every type of modern aircraft.

Fifteen years ago, Fafnir first designed and produced aircraft-type bearings for outstanding airplanes of that era. Since that day Fafnir's assignment has been to engineer friction out of aircraft controls. Today's speeding fighters and giant transports are mechanically better because Fafnir experts solved the problems affecting aircraft bearings.

the "steering devices" of the future. Such maximum speed would result from jet-propulsion—a principle that has been used already in modern aviation.

With our colleagues in the industry, Fafnir looks and thinks ahead toward the great aircraft of tomorrow by means of which communication and trade will move at a new, fast tempo around a shrinking world. Fafnir will produce the specialized bearings that will speed these developments. The Fafnir Bearing Co., New Britain, Conn.

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Two Department Stores Apply To CAB for Helicopter Permits

Mandel Brothers of Chicago, and Hecht's of Washington, seek air route certificates; other applications filed during week.

Two applications for Civil Aeronautics Board approval of intercity relationships occurred by the formation of Airlines Charter House, Inc., organization to clear interstate ticket sales accounts, were filed with the Board last week.

One was for Thomas F. Armstrong, secretary, treasurer and director of Eastern Air Lines, the other for L. B. Dodd, assistant secretary and director of Delta Air Corp. Both are directors in the new clearing house.

Departmental Store Routes—Two well-known department stores were among recent applicants for air route certificates. Mandel Brothers of Chicago and the Hecht Co. of Washington proposed to use helicopters. Mandel's asked a permanent certificate for scheduled transportation of persons, property and mail over six routes in Illinois, Wisconsin and Indiana, going out from Chicago to Milwaukee and Elkhart, Wis., Rockford, La Salle and Watonska, Ill., and Elkhart, Ind. Hecht's also wants a permanent certificate for non-scheduled transportation of persons and property on seven routes out of Washington to Winchester, Dela-

ware, Warrensburg, and St. Louis, Mo., Baltimore and Point Lookout, Md., and Bethesda Beach, Del.

Among the airlines, Pennsylvania Central asked in three applications for a new route between Washington and Montreal, Canada. One would extend PCA's AM 34 from Buffalo to Syracuse, N. Y., via Rochester. Another was for a route between Washington and Syracuse via Baltimore, Wilmington, Philadelphia, Allentown-Bethlehem, Wilkes-Barre-Scranton and Binghamton, and the third between Syracuse and Montreal via Ottawa. PCA previously applied for a service to link Washington with Ottawa.

Alternative Routes—Mid-Continent Airlines, in addition to its earlier application in Docket 682 to extend AM 28 from Tulsa to New Orleans, asks an alternative extension from Kansas City to New Orleans via intermediate points, and from Tulsa to Little Rock, via Mangrove, Okla., and Fort Smith, Ark. Eastern filed several amendments to previous applications, one for additional intermediate points as AM 8 and 4, another for service between Norfolk, Va., and New York via

West Virginia points and Pittsburgh, between Measke and Pittsburgh via West Virginia points, and between Pittsburgh and Philadelphia.

Cleota Route—Colonial amended its application in Docket 1178 to ask an additional circle route from New York, via Pittsburgh, Columbus, Dayton, Anderson-Scammon-Clearle, Ind., Chicago, Detroit, Cleveland and Niagara Falls.

An amendment from R. W. Wiggin Airways of Norwood, Mass., to Docket 389 asking service between Boston and Providence via intermediate points asked a route between Newport, R. I., and Block Island, R. I. Page Airways of New York asked that Hagerstown, Md., be substituted for York, Pa., as an intermediate point on the route between Rochester, N. Y., and New York. It asked in Docket 1048.

Columbia, Mo.—Lee—Wiggins, who is in the civilian pilot training program, asked from Columbia, Mo., to provide scheduled passenger, property and mail service of the local, field and pickup variety in that area, over three routes, one drilling from Columbia to Columbia via intermediate points in Missouri, another via points in Missouri and Illinois, and the third from Camden, Ark., back to Camden via route in Mississippi, Arkansas, Tennessee and Louisiana.

A similar operation was requested by Kansas Aviation Co. of Manhattan, Kan., another training school outfit, for five routes, one from Manhattan to Kansas City, one from Goodland, Kan., to Denver, and three circle routes out of Manhattan via points in Kansas and Nebraska, the latter route via Fort Collins.

Exceptional—Pan American Airways applied for an exception order authorizing Wilkesbarre, Pa., as an intermediate point between Cleota Truella, Bismarck, N.D., and La Grange, Tennessee.

Union bus lines of San Antonio seeks scheduled transportation of passengers, mail and express by helicopter over Texas routes between Brownsville and El Paso, Brownsville and Wichita Falls, Alice and Corpus Christi, Alice and Laredo, San Antonio and Del Rio, Brownsville and Dallas, Brownsville and Ft. Worth, and Brownsville and Amarillo, via intermediate points.

South Central Air Transport of Fayetteville, Ark., applied for a non-scheduled plane and pickup scheduled transportation of passengers, mail, freight and express, on routes between Kansas City and Shawnee, De Quets, Ark., and Shawnee,



FLIGHT NURSE BADGE:

Capt. Jeanette Redmond, Army Nurse Corps, models the new gold-strapped badge for flight nurses similar to the flight surgeon's wings, although smaller. It is the Combat Observer's badge with an "N" superimposed for nurse. Graduates of the School of Air Resuscitation, Bowman Field, Ky., who have been assigned to flight duty are authorized to wear them.

port, Kansas City and Macon, La., Monroe and Little Rock, Ardmore, Okla., Ark., and Monticello, Ark., St. Louis and Fort Worth, St. Louis and Dallas, Carlsbad, N. M., and Fort Worth, Mo., Dallas and Hugo, Okla., Cape Girardeau, Mo., and Columbia City, Iowa, Ill., and Joplin, Mo., Memphis and Walnut Ridge, Ark., Memphis and Earl, Okla., Memphis and Conway, Ark., Jackson, Miss., and Wichita, Kan. Wichita and Claremore, Okla., and Helena, Ark., and Stuttgart, Ark.

From Shawnee Transport Corp. of Columbia, S. C., came application for scheduled transportation of freight, express and mail by helicopter between Chicago and Columbia, Boston and Columbia, Flint, Mich., and Columbia, Jacksonville and Columbia, Atlanta and Columbia, Atlanta and Greenville, S. C., and Toledo, Ohio and Columbia.

Transport Meeting

The standing Transportation Committee of the United States Chamber of Commerce held open discussion of aviation problems as a prelude to the regular meeting of the chamber's board of directors.

Because of the unspectacular nature of the session, which followed an earlier conference on highway problems, the subjects were expected

to range from airports and the LaSalle to post-war problems and job orders, with any committee recommendations to be submitted to the board after the meeting.

Air Officials Named In Two States

Massachusetts and Georgia report new state air officials. Massachusetts has a new Aeronautics director as well as a new chairman for its Aeronautics Commission. The director, Arthur H. Tully, Jr., of Cambridge, was appointed by Thomas D. Cabot, who received his appointment as Commissioner chairman from Gov. Leverett Saltonstall and last year. Tully is a Civil Air Patrol member, and has been executive officer of the Massachusetts CAP wing. He is giving up his job as securities analyst for a Boston investment trust to take a new post as secretary.

Seeks Saltonstall—Cabot, a Boston business man and flyer as the first World War, succeeds Cal Thomas Jr. Sullivan, who recently became Boston police commissioner.

Cabot's father, Godfrey L. Cabot, has been described as the "grand old man of New England Aviation." He learned to fly when he was 54, and in former president of the National Aeronautics Association and honorary chairman of the Aeronautics Association of Boston. His son, the new commissioner, was a second lieutenant in the World War and served as instructor in Tuscon, later being stationed at a Florida coastal post office.

In Georgia, Gov. Ellis Arnall has completed appointment of a state aviation commission which will cooperate with the State Highway Department and other agencies in planning for airports, feeder lines and other aviation facilities in the state, particularly with attention to post-war possibilities.

Commission members, who were recently named, are Coby Lewis of Atlanta, president of Georgia Air Service, Inc.; C. L. McMillan of Cordele, a county commissioner, George R. Cushing of Atlanta, operations manager of Delta Air, Wallace Sheffield of Americus, instructor in an Army contract school and associated with the Graham Aviation Co. there; Omer L. Woodson, vice president and manager of the Georgia division of Allen Aircraft Corp., and William C. Goodale, Valdosta banker.

The Commission, whose members will serve without pay, was created under authorization by the 1943 general assembly.



for more than 23 years, the Mercury Mark has stood for precision and skill in craftsmanship, plus a sixth sense which can be acquired only through experience ... the know how to do a job right ...

maximum fuel and oil tanks • efficient use of radiator and similar machines • aircraft parts and accessories.



EXPORT'S EMPLOYEES HONORED:

Among the 38 official employees of American Export Airlines honored by the company at a recent dinner in New York were James M. Eaton, vice president (center), and W. Sander Gruen, passenger and cargo manager (right). Eaton and Gruen were the first ones employed by American Export. Executive Vice-President John E. Slater is presenting them with gold pins.

Wide Interest in Airport Planning Revealed in Kansas City Meeting

635 representatives from 140 cities and towns in 14 states attend two-day conference on Midwest post-war aviation program.

Interest in airport planning is a major consideration with municipal and civic officials, judging from the attendance and attention at the Midwest Airport Planning Conference sponsored at Kansas City by the Aviation Department of the city's Chamber of Commerce.

It was one of the biggest air meetings ever held in Kansas City, with more than 600 representatives from 140 cities and towns in 14 states (Originally it was to be a state-state meeting.) In the group were 43 mayors and city managers, 18 college presidents and faculty representatives, airline officials, Chamber of Commerce executives, airport managers, plane manufacturers, and airport experts and technicians.

Special Is Local Meeting—The two-day sessions were a sequel to the local air service conference under Kansas City Chamber auspices last November. Delegates to that meeting agreed a conference on airport problems. About 300 persons from 92 cities in the region attended the trade area meeting.

Typical comment came afterward from one of the speakers. "I heard a lot of new things," he said. "It would be a bad idea for other regions to hold similar meetings."

Hagen Speaks—Private flying came in for a big share of attention among the various airport subjects up for discussion. One of the speakers on this subject was John M. Hagen, airport project executive and member of the personal aircraft

committee of the Aeronautical Chamber of Commerce.

Hagen described the personal aircraft field as "the most potential single element in aviation." Hagen, who also is executive assistant at Aeronica Aircraft Corp., Middle-town, Ohio, sees in private flying a "mode of transportation that will re-make our civilization, although it is still in embryo." He pleaded for aircraft less expensive to buy and operate and simpler to house and handle, with emphasis on safety. The last qualification, he told the group, will be governed by three things, ability to fly in a wide range of weather conditions, existence of simple regulations—"rules of the road"—and number and location of proper ground bases.

Little Airfields—Chambers of Commerce, Hagen said, are ideal facilities for arousing interest in the provision of ground facilities, or "little airfields," such as are needed in increasing volume, and it's not too early for them now to be plotting airfield requirements. "The mere existence of many airfields," he asserted, "will be a major contribution to the maintenance of a strong and vigorous aircraft industry in the post-war world."

Louis Iwasaki, assistant director of economic research for Transcontinental & Western Air, whose executive vice president, E. Lee Palmer, greeted the delegates, emphasized safety as a consideration in the building of airports. Trans-

port basic runway lengths for both airline traffic and smaller fields, Iwasaki said they should be at least 1,000 feet long in the future, to provide sufficient length for a safe single-engine takeoff if the second engine fails. Smaller fields, he believes, should have runways 1,200 to 1,500 feet long. He pointed out that airfields should be made for future expansion, and said the well-planned airport should provide additional facilities such as plane service, repairs, storage and auto rental service, phone and recreational service.

Concessions—Comment on these latter possibilities also was offered by John Groves, former manager of the Washington National Airport and of the Air Transport Association, where he is secretary of the Committee on Airport Development.

Groves is confident that airports can get a sustaining revenue through concessions and other sources in addition to regular airline, fuel lease, and school income, and predicts a revival of the early ideas of airport parking, recreational areas and swimming pools.

Fuel Problems—Attention of the meeting was called to the importance of fuel problems by Rep. Jennings Randolph of West Virginia, one of the aviation leaders in Congress. Such problems, he said, may become critical in the future. He urged development of synthetic fuel plants to make sure that surface transportation systems will not be stopped and planes grounded.

F. K. Flaherty, of Kansas City, fifth region supervisor of airports for the Civil Aeronautics Administration, said he thought airport development and aviation as a whole should proceed together. He described in detail some of the considerations involved in future requirements.

Fixed Base Operators—The place of the fixed base operators in aviation's future was outlined by Col. Roscoe Turner, president of the National Aviation Trade Association and head of an Indianapolis aeronautical corporation bearing his name. Donald E. Pratt, of Hays, Kan., airport manager there, commented that it is "up to the smaller municipalities to provide the airports necessary" to sell the public on "the forthcoming air age."

Alfred MacDonell, Wichita, Kan., advocate of perfect and airports, warned that financing plans for airports must be fair to the public or they will become a post-war aviation bottleneck. He discussed financing of capital elements of the airport as well as maintenance and upkeep.

Turf Airports—The case for turf airports, especially after the war, was presented by Dr. John Macfarlane, Jr., principal aeronautical, Army Engineers, Washington. He believes that, in post-war planning, turf may be used to a distinct advantage. Dr. Frank W. Hart, educational consultant for the Civil Aeronautics Administration at the University of California, declared aviation has greatly stimulated interest among students and predicted that the future, with 30 million students receiving aviation education, would see the developmental of "many far reaching programs."

Dallas Port Program

City acquires 3,500 acres for new major terminal development.

National interest reflected in congressional airports continues to spur plans for modern municipal facilities. With acquisition of a 3,500-acre site 10 miles from Dallas for development as a "superairport," city councilmen of the Texas city have launched a master aviation program that visualizes an eventual total of 21 airports to serve the metropolitan area.

Armed with recent public approval of a \$5,000,000 aviation bond issue, the councilmen expect to spend at least \$2,000,000 in the next twelve months. The bond issue, incidentally, was approved 8 to 1.

Facilities—Stand for facilities to serve private flying may spur development of the new site, since Dallas Love Field, city airport in the county with all-weather runway, has been taken over by the War Department.

The city expects to own and develop three of the ports contemplated in the master plan.

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Grinnell Company, Inc., Executive Office, Providence, Rhode Island



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BRITISH TYPHOON WITH NEW CAMOUFLAGE

These two new views of the British Typhoon, released by the British Information Service, show the unusual camouflage on the lower part of the wings, designed to

aid British ground gunners and fighter pilots in distinguishing the speedy craft from the German Focke-Wulf-109, which it is said to resemble.

PERSONNEL



NEW HEADS OF LAWRANCE AERONAUTICAL CORP.

Dr. Alexander Barnatan (left) and Alfred Marshall are now heading Lawrence Aeronautical Corp., Littleton, N. J., as president and vice-president, respectively. Previously executive vice-president, Dr. Barnatan took director of the aeronautical division of Minneapolis-Murray, before joining Lawrence. Marshall was formerly with the Rubber Development Corp., Aviation Division, in Miami and Washington.



Harold W. Kelly has been promoted to assistant treasurer of the Air-Quint Regulus division of the Fairchild Engine & Airplane Corp. He came to the Regulus division as supervisor of the economic feasibility department in 1961, after serving for 15 years with South-Semco Co., New York brokerage firm.

Henry P. Sakellari has been named manager of the aeronautical section of the field engineering department of the tire division, B. F. Goodrich Co. A well-known tire engineer, Sakellari has been on special engineering duties in the company's aeronautical tire division since his return last year from the African theater of war, where he

was engineer in charge of rubber products at two large maintenance and repair bases. Entering the rubber industry in Canada, Sakellari joined Goodrich in 1925 as tire designer. He is credited with many contributions toward improving the safety and service of tires, particularly those for airplanes. He is a member of AIAA, and author of numerous technical papers on tire design problems.

Major J. T. Seneca was recently appointed AAF representative at Fairchild Engine & Aircraft Corp. In the Marine Corps during the World War, Maj Seneca joined the Air Force in 1940 and served in the production and control section of the eastern procurement stream until going to Fairchild. Before the war, he was executive vice-president of the Washburn Supply Co. and, previously, with Bethlehem Steel Corp. as general superintendent of the Stearns Motor division and chief of Bar and Light Structural Mills. He has flown as co-pilot on B-29's and B-36's.

Major Williamson has been appointed assistant to American Airlines' vice-president G. M. Mason, and assigned to the Washington office. Also joining the Washington staff under Mason, is Major Skyles, until recently supervisor of reservations and ticket office for the airline in Philadelphia.

R. J. Veehling (left), superintendent of maintenance for Pennsylvania-Central Airlines, has been promoted to chief engineer, with supervision of all engineering and maintenance functions. Continued expansion of various operations made a reorganization of the department necessary, according to a PCA announcement. Before joining PCA, Veehling was a development engineer for Douglas Aircraft Co. He is succeeded by R. G. Swank (right), who has been assistant vice-president of maintenance. Swank has a long record of airline maintenance experience. He is said to have installed the



first radio beacon receivers in commercial aviation and participated in the first two-way ground-to-air radio experiments.



Thomas A. Kowalek has been made a vice-president of Goodyear Aircraft Corp. He has been also manager and formerly manager of the customer engineering contact department for the past two years. Kowalek joined Goodyear in 1937 after his graduation from Massachusetts Institute of Technology. He was first assigned to the tire design department and later received his degree in a balloon and airship pilot. In 1935, he went to the research department of the Goodyear Zeppelin Corp., serving there during the construction of the airships Akron and Akron. He made a trip to Germany on the Graf Zeppelin and studied airship construction at Ludwigsfelde, returning to Goodyear Zeppelin as development engineer. He represented the interests of the Goodyear Zeppelin Corp. and American Zeppelin Transport, Inc., in Washington from 1939 to 1940, working on proposals for the development of over-ocean airship service.

New communications supervisor of the Washington general offices of Pennsylvania-Central Airlines is Stanley Koke, chief radio operator. In his new position, Koke is in charge of all telephone, teletype and radio communications in the Washington office. According to PCA, more than 50,000 radio and telegram messages alone are handled by the PCA main office. Koke is a graduate of the Keystone Radio Institute in Pittsburgh, and has been assigned in Washington since March, 1959.

Dolan W. Russell, director of communications for American Airlines, has been elected president of Aeronautical Radio, Inc., non-profit organization owned by domestic airlines. Effective Feb. 1, Russell has been granted an indefinite leave of absence from American to accept the new position. He replaces Claude Paul Goldsworthy, now on active duty with the Service

of Aeronautics. G. E. Moss, assistant to Russell for several years, replaces him as acting director of communications.

John E. Wilson, director of bridges and structures for Henry Gyroscopic Co., has been named assistant treasurer. He is succeeded by R. M. Payton, bridge assistant. Consequently, Frank F. Wilson, engineering planning engineer, has been appointed assistant to the vice-president for manufacturing.

C. H. Benson was appointed assistant sales manager of Aeronautics Metals Corp., makers of Russian aircraft engines. He joined the company in 1957 and before that was a food sales organizer for several years, as manager of the Curtis Flying Service, Rochester, N. Y., and in business for himself at the Rochester Airport. He returned to Kelly Field during World War and it is expected that he will continue his own flying travels to place manufacturers in connection with his new sales post.

Thomas J. Lounsbury has been named and corporate representative for the New York district of Transcontinental & Western Air. Before joining TWA, he was acting manager for the lifetime. Stinson Corp. for seven years, and before that was with the National City Bank. His headquarters will be in the Aviation Terminal in New York.

John P. Gilman has resigned as director of public relations for Northeast Airlines. His plans have not yet been announced.

At the Honors Night dinner of the Institute of Aeronautical Sciences in New York last week, two other award winners were Brig Gen Edgar G. Bennett (left), commander, School of Aviation Medicine, Randolph Field, Texas, who received the John F. Allen Award, and Lt. Col. Joseph J. Gough, chief of Special Studies Section, Weather Division, Headquarters, Army Air Force, who got the Robert M. Loney Award for 1958. Gen Bennett was chosen for his work on the neuropsychiatric aspects of aviation medicine. He was commissioned in the Medical Reserve Corps in 1937, and has had the longest continuous service of any medical officer assigned to the AAF in World War I. He served with the aviation section of the signal corps, and in 1919 was assigned to the aeronautics division of the aviation section, Signal Corps.

Col. George, who at present is on leave from Eastern Air Lines, received the Robert M. Loney Award in recognition of his outstanding contributions in the science of meteorol-



ogy as applied to aeronautics. He attended the University of California and the California Institute of Technology from 1929 through 1934. Col. George was chief meteorologist for Western Air Lines, and then served in the same capacity for Eastern Air Lines until he joined the Army in March, 1940. The section of the Weather Division of which he is chief produces studies of weather conditions used by staff agencies in planning various military operations. This service was established by the Institute in honor of Capt Robert M. Loney, one of its founders and a meteorological officer in the Air Corps. He was killed in Berlin, Germany, in April 1945, while serving as chief observer for the U. S. Army, the first officer in the service of the U. S. to be killed in the present European war.

Massachusetts Aeronautics Commission has a new chairman, Thomas D. Cobb of Winton, Boston business man and a World War flyer. Appointed by Gov. Saltonstall, he succeeds Col.

Thomas F. Sullivan, who recently became Boston police commissioner. Cobb's father is Collier F. Cobb, sometimes called the "grand old man" of New England aviation. The elder Cobb was advocating years ago the military use of planes. He learned to fly in 1915 at the age of 34. He is a former president of the National Aeronautics Association, and honorary chairman of the Aeronautics Association of Boston.

In the new reorganization of PCA's engineering and maintenance departments, structural engineering and airframe development work will be headed by Henry S. Peak (right), who has directed that work heretofore. L. J. Gonsky (left), operating engineer, becomes buildings and facilities engineer. A. P. Morris (center), formerly assistant to superintendent of maintenance, now is office manager, engi-



neering and maintenance department. Appointed research and development engineers were J. B. Allison and W. C. L. Finke.



ADMIRAL RICHARDSON AT PRATT & WHITNEY

Rear Admiral Laurence B. Richardson, USN, assistant chief, Bureau of Aeronautics, presents the Army-Navy "E" pennant to acting general manager William P. Goss of the Northampton plant of Pratt & Whitney Aircraft division, United Aircraft Corp. With the presentation of this production pennant, one new firm each of the six Pratt & Whitney plants. In the background (seated) is Col. Hubert S. Johnson, USAF, who presented token "E" penn to employees of the plant.

Preferreds Hold Leading Position In Number of Aircraft Companies

Sinking fund provision of Consolidated-Vulcan \$1.25 issue soon to become operative; cumulative as to dividends.

By ROGER WILCO

Few in number, aircraft preferred shares occupy a leading position in the capital structure of a number of companies.

Attention to this group of shares is called by the sinking fund provision seen to become operative for the Consolidated-Vulcan \$1.25 preferred. These shares represent the original preferred stock sold by the old Vulcan Aircraft Corp. at \$15 per share in December, 1943. At the outset, there were 240,000 shares issued. In March, 1945, when the merger created Consolidated-Vulcan Aircraft Corp. was effected, this stock was exchanged share for share into an identical preferred series of the new company. At the time of the exchange, the issue was reduced to 218,750 shares.

Earned \$68.25 a Share—While this preferred stock attracts the company in respect to most position and dividends, it is subordinate to any bank loans that the company may erect. Nevertheless, this preferred was credited with earnings of \$68.25 per share for the fiscal year ended May 30, 1945. Earnings were probably unusually higher for the most recent year. The small amount of preferred shares outstanding makes for considerable leverage in these earnings. The senior issue is cumulative as to dividends at the annual rate of \$1.25 per share before any payments can be made on the common.

The Consolidated-Vulcan preferred is callable at \$27.50 per share. This would mean a principal payment of \$3,009,375.00 to retire the entire issue and should not prove too difficult for the company to accomplish, if so indicated. At the present market price of about \$20 per share, however, only \$4,324,380 is indicated. This is where the sinking fund operation can become a potent factor.

Sinking Fund—On or before Feb. 15 of each year, the company is now

required to set aside either 20 percent of the previous year's earnings over the amount of dividends paid on the preferred or a minimum amount of \$250,000, whichever is larger.

The minimum sinking fund payment on each date is \$500,000. Cash so set aside is to be used to redeem the preferred either by purchase in the open market or by call. It can be seen that at current prices the current sinking fund payment, at its maximum, is equivalent to more than 10 percent of the entire issue.

Some attractions—of little import



HELICOPTER ENGINE:

This is a six-cylinder, inverted, air-cooled Franklin engine, built by Aero-Motors Corp. of Syracuse, N. Y., to power post-war helicopters. The circular housing carries cooling air around the engine from the exhaust-driven fan at top. Engine operation is varied position directly below main rotor shaft.

now—as the convertible feature. This permits conversion into the common at the rate of 3 1/2 shares of common for each share of preferred. During 1943, the Consolidated-Vulcan stock issue sold at high as \$17.25 and as low as \$17.50 per share.

Largest Preferred Offering—The largest aircraft preferred stock offering was made by United Aircraft Corp. when it sold 265,000 shares in January, 1943, at \$16 per share for a total of \$4,240,000. This issue has been reduced to 200,000 shares early in 1945.

The United Aircraft preferred is cumulative as to dividends at the yearly rate of \$5.00 per share. The stock is convertible at the indicated rate of two and one-half shares of common for each share of preferred. On this basis, the conversion privilege is of negligible value at present market prices. There is also a sinking fund operation but it is of small consequence. The company has agreed to set aside semi-annually, in sum equal to 1 percent of the largest amount of preferred at any time outstanding for purchase at prices not exceeding \$100 per share. Any unexpended balance is to revert to the company. The stock is callable at \$9.95 per share up to Jan. 1, 1945, and at \$12.50 thereafter. As of Oct. 31, 1943, this preferred had a book value of \$24.46 per share. (This figure is much higher now.) During 1943, this issue ranged from a high of \$14.50 per share to a low of \$9.25.

Perpetual Security Measure—An investment circle, it has been assumed generally that when United Aircraft realized that issue it was in no dire need of funds, but was taking precautionary measures to protect its working capital. The expectation is that the company will retire this issue preferred some at its first opportunity.

Carlin-Wright Corp. has a type of preferred in the form of its \$2.00 non-cumulative Class "A" stock. This issue, however, has no preference as to assets. Moreover, the stock is non-cumulative as to dividends and this has been a troubled period in the past to the stockholders of this issue.

The Class "A" is convertible into the common on a share-for-share basis. There appear to be little reasons to expect any such conversion in the near future.

Outstanding—There are 1,100,000 shares of the senior stock outstanding. This stock has had a wide range during 1943, fluctuating between \$24.50 and \$16.25 per share, and currently sits around \$16. The com-

mon can be purchased at about \$6 per share.

Air Carriers' Revenue Up Sharply for Year

New assets \$29,724,550 against \$32,912,469 in 12 months ended Oct. 31.

Net operating revenue dropped off in October for the 10 domestic air carriers, the Civil Aeronautics Board reports, although for the year ending with that month it was well ahead of its 1943 twelve-month period a year earlier.

October net operating revenue was \$2,626,823, compared with \$3,381,144 in October, 1943. For the year to Nov. 1, however, it was \$29,724,550, compared with \$25,912,469 in the twelve months to Nov. 1, 1943.

Mileage Increases—The picture was reversed when it came to revenue miles flown. Last October's figures thus amounted to \$235,240, against \$268,539 in October of the previous year. For the twelve months ending with October, 1943, they were 241,799,211, compared with 119,673,323 in the same 1943 period.

Other figures, for October, 1943, and October, 1944: Total operating revenue, \$11,100,500 and \$10,937,750; operating expenses, \$3,496,423 and \$6,671,686. For the twelve months ending October, last year compared with the corresponding period last year: Total operating revenues, \$128,623,627 and \$108,343,343; operating expenses, \$69,486,191 and \$55,531,111.

NWA Salaries

Credit Harrier, president of Northwest Airlines, Inc. of St. Paul, received a salary of \$34,933.06 during the fiscal year ended June 30, 1943, according to the company's annual report to the Securities and Exchange Commission. Other salaries paid were: R. W. Wiley, vice president and treasurer, \$20,087; and R. H. Farnham, vice-president, \$13,211.

Financial Reports

Consolidated Vulcan Aircraft reports profit for the fiscal year ended Nov. 30 last, giving effect to first renegotiation of contracts and adjustments for federal income and income profits taxes was \$13,851,021, equal to 86.6¢ a share on 1,580,894 common shares. Of the total net income, \$5,390,680, equal to \$6.13 a common share, has been set aside for post-war readjustments.



THUNDERBOLTS IN THE MAKING:

Three workers who formerly built kitchen ranges and refrigerators at the Massillon, Ohio, plant of Westinghouse Electric and Manufacturing Co., are shown here applying aluminum sheet to the tail framework of Republic P-47 Thunderbolt fighter planes.

TELLING THE WORLD

Kinner Motors has appointed West-Market, Inc., Los Angeles and San Francisco advertising agency, to handle its account. Business and general publications will be used as well as a number of South American automobile publications in Spanish and Portuguese.

Because of the success of its first venture into book publishing with a 32-page booklet entitled "How to Win Workers or—How-Winners" "Wee! Work," Chas. A. Kinner Corp. has hired two more bookies. One of employees called John an *Ordinary Guy Looks at It*, before, called *perfunctory* on its, its danger and how it can be avoided. The other book, also for employers, is *Know the Ropes*.

Anshel Enterprises, Inc., Houston, has appointed W. P. Payne Advertising Co., Tulsa, a campaign in national business papers is planned.

Roadway Express Agency has sent a letter to its prospect list. Because new rates for air express shipments are now in effect, in some cases as much as 1944 prices, the company is asking to have its old contracts destroyed. The agent estimates approximate airline charges between cities and approximate time required for shipment, and approximate cost.

Advertisements by United Aircraft Corp. and Bendix Corp. landed among the first best-sold newspaper ads in 1943, according to the latest "Controlling Study of Newspaper Advertising" issued by the Advertising Research Foundation. The United Aircraft ad was one used a same page—ad of the Bendix Corp. has been monthly in major newspapers. Plus-Forbes Co. was the advertising

agency. Bendix ad headed "Identification of American Airmen" placed through Buckman & Co. also received a high percentage of readings.

Republic Aviation Corp. has appointed Keweenaw, Wey & Co. advertising agency. This agency also handles the Air Transport Union account.

A new three-color booklet, "How to Use Your Electrically Heated Flying Classroom," has been prepared and published by the Federal Production Division of General Motors Corp. for the Military Command of the Army Air Force, Wright Field. Printed in light, non-toxic ink, with illustrations on correct operation of the P-47 type (P-47) plane, the cover drawing has a "put-up" device. It depicts two men standing in the high-winged plane while a "Roger" looks on approvingly.

W. P. Keweenaw Co. has been appointed sales and engineering representatives in the Chicago territory for Young Radiator Co., manufacturer of best radiator products for aircraft, automobiles, marine, and other fields.

The de Havilland Aircraft of Canada has issued a booklet "Know Your Can Warplane" which is available to civilian citizens and engineers in the aviation industry. The booklet contains a series of articles on technicalities sponsored by de Havilland. Some chapter headings: "Why is there a trend toward increasing the number of blades on propellers?", "What is non-splittable?", "What is the meaning of air-drag drag and parasite drag?" Requests for the booklet should be sent to company literature, 14141, 14141, to Dept. 104, The de Havilland Aircraft of Canada, Postal Station 1, Toronto.

Our Global Airlines

COMMITMENT of the Naval Air Transport Service to air transportation, described in the GWT report, are as remarkable for the difficulties which have been surmounted as for more arduous progress in miles flown, passengers carried, and pounds hauled.

It is becoming popular for writers to discount post-war importance of the Army and Navy transport services on the ground that cost of operation is no element, and that shipments which may have no commercial necessity for flying after the war are being rushed by air to the Caribbean, South America, or Australia every day.

Granted that is true, the fact remains that worldwide airline operating organizations have been built up on a scale never seen in aviation before. They are being compelled to operate on time margins that may never be necessary again. They are required to solve problems which they might never have met in commercial services or, if they had, there would have been time for preparation and planning. They have had to use any planes they were given and make the most of them. They have cut corners and red tape, and broken with tradition in everything from dispatching to cargo packing, all under the terrific urgency of the moment.

The American's unique ability to improvise, and his ingenuity in getting the job done, are preparing for new techniques, new operating procedures, which will set our foreign competitors back on their heels when scheduled commercial flights return.

The backlog of wartime experience which both our domestic and foreign airline people will have at the armistice gives us an enviable advantage. They know they have been inefficient. That a part of any war project. More important, they are learning records and building up experience which tells them why. The result will be something to watch.

Air Power "Optimism"

A PROSPECTIVE THING is beginning to hob up in print contending that there has been too much optimism about the possibilities of air power. The theme appeared last week in a syndicated columnist's article and in a national news weekly. Other references have been published recently.

These writers who are belated on aviation say results from bombing are not to be as decisive as the "war enthusiasts" had promised. They admit that air power is a first essential to any victory but, to quote the U. S. News, "the concept of air power as

the decisive power appears to be undergoing a very great strain. Next few months will tell."

Only three days before that periodical appeared, Gen. Spaatz told reporters in England that he believes the Luftwaffe can be beaten this summer. A few days earlier a high official in Washington had told one of the editors of *Aviation News* that the AAF believes it could down Luftwaffe in sixty consecutive days of bombing, if weather permitted such operations.

It should take little imagination to picture the great advantage the Allies will have, both on the ground and in the air, if they succeed in sweeping the Luftwaffe from the skies.

No one in aviation is ready to give credence to reports "led" by anonymous persons to columnist and national magazines that air power is falling down on the job, or even threatening to do so. It might be apt, however, to ask if air power is getting the chance it should have?

Counting Spare Parts

THE NAVY'S BUREAU OF AERONAUTICS under its new assistant chief, Rear Admiral Lawrence B. Richmond, is ordering accelerated production and delivery of spare parts.

Output of completed aircraft by Navy contractors has reached unprecedented efficiency. Fully as important, however, is the present stage of the Navy's aircraft program, in adequate supply of the spare parts for distribution throughout the vast fighting areas in the Pacific in preparation for the stepped-up campaign against the Jap. A plane sitting under an island palm tree minus a wing-tip is no-excellent as far as contributing to our aerial striking power.

Thus rising importance of spare parts in the combined Army and Navy aircraft and engine program is indicated by statistics covering dollar volume. In 1943, value of spare parts production totaled approximately 30 percent of the entire aviation schedule. In the first six months of 1943, the figure was about 21 percent. However, late in 1943 the monthly shipments in parts had risen nearer to 25 percent, and in 1944 may reach 27 percent in some months. These data include aircraft, engines, target planes, gliders.

Spare parts do not count as completed aircraft, obviously. Plants cannot and will not increase production both of completed planes and parts simultaneously. This rising proportion of parts output is another instance in which the "numbers racket," assessing monthly production in number of planes turned out, whether paddle jumping buses craft or supercoasters, fails as an honest index of the industry's production effort.

ROBERT H. WOOD



Success against ground forces and even in the air is essential for successful attack. Wings for B-24's 'Jugos' built by Grand Rapids industries.

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WITHOUT reservation the Timken Propeller Blade Bearing is the most difficult bearing we have ever manufactured.

The bearing surfaces must be finished unbelievably smooth otherwise the blades will not feather correctly at high propeller speeds. Every bearing is given a most severe torque test.

Weight variations between any two complete bearings are held "right on the button," otherwise bearings alone would throw propellers out of balance.

There are thousands of Timken Propeller Blade Bearings in service and they are making an excellent performance record in fighter and bomber plane service.

If you are interested in propeller blade feathering bearings we welcome your consultation.

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